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GOST Measurement Application (for the FloBoss™ 107) User Manual

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Revision Tracking Sheet

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Chapter 1 – Introduction

This chapter describes the structure of this manual and presents an overview of the GOST Measurement Application for the FloBoss™ 107.

1.1 Scope and Organization

This document serves as the user manual for the GOST Measurement Application user program, which is intended for use in FloBoss™ 107 ("FB107"). This manual describes how to download and configure the programs (referred to as the "GOST programs" or "the programs" throughout the rest of this manual). You access and configure the programs using ROCLINK™ 800 Configuration Software (version 1.75 or greater) loaded on an IBM®-compatible personal computer (PC) running Windows® 2000 (with Service Pack 2), Windows XP, or Windows Vista.

The sections in this manual provide information in a sequence appropriate for first-time users. Once you become familiar with the procedures and the software running in a FB107, the manual becomes a reference tool.

This manual has the following major sections:

- *Section 1 – Introduction*
- *Section 2 – Installation*
- *Section 3 – Configuration*
- *Section 4 – Reference*

This manual assumes that you are familiar with the FB107 and its configuration. For more information, refer to the *FloBoss 107 Flow Manager Instruction Manual* (Form A6206) or the *ROCLINK 800 Configuration Software User Manual (for FB107)* (Form A6217).

1.2 Product Overview

The GOST Measurement Application consists of two programs (GOST Properties and GOST Flow). The GOST Properties program enables a FB107 to calculate compressibility using the GOST 30319-96 (compressibility) standard. The GOST Flow program enables a FB107 to calculate differential flow rates according to the GOST 8563, GOST 8586, Annubar, and Venturi standards.

The GOST Properties program supports a choice of three algorithms for calculating compressibility:

- VNIC SMV(for natural gas density 0.668 to 1.00 kg/m^3)
- GERG-91 (for hydrogen sulfide free gas density 0.668 to 0.70 kg/m^3)
- NX19 (for natural gas density 0.668 to 0.70 kg/m^3)

VNIC requires the full gas composition. NX19 and GERG-91 require N2, CO2, and density at contract conditions. Refer to GOST 30319.1, *GOST 30319.2*, and *GOST 30319.3* for specific details on the compressibility calculations and equations.

The GOST Flow program supports a choice of four algorithms for calculating flow rate:

- Annubar
- GOST 8.586-05
- GOST 8.563-97
- Venturi 8.586.04-05

1.3 Program Requirements

The GOST Measurement Application version 1.01 is compatible with FB107 firmware version 1.10 and with version 1.75 (or greater) of ROCLINK 800 software. Each program requires you to install a software based license key to enable the calculations.

The downloadable program is:

File Name	Program Number	User-Defined Points	Display Number
gost_flowcalc_5.bin	5	31, 32	32, 33
gost_properties_3.bin	3	28	29

Note: You must connect a PC to the FB107's LOI port before starting the download.

For information on viewing the memory allocation of user programs, refer to *ROCLINK 800 Configuration Software User Manual (for FloBoss 107)* (Form A6217).

1.3.1 License Keys

Some applications require that you install a license in the CPU to run the application. This license software is specific to these applications and is the property of the individual vendor (shown in the Vendor Name field on the License Key Administrator screens).

RAS (and other authorized vendors) distributes software licenses on security-enhanced universal serial bus (USB) drives.

You must install the following license keys to use the Water and Steam Program.

- GOST_FlowCalc License Key (FS1LK-5)
- GOST_Properties License Key (FS1LK-6)

Chapter 2 – Installation

This section provides instructions for installing the GOST Measurement programs into FB107 memory. Read *Section 1.3* of this manual for program requirements.

Note: The program and license key can be installed in any order. The manual shows the installation of the license key first.

2.1 Installing the License Key

A license key is required to use the programs included in the GOST Measurement Application. To install a USB key-based license on the FB107:

1. Insert the USB license key in a USB port on your PC.
2. Select **Utilities** > **License Key Administrator** > **Transfer Between Device and Key** from the ROCLINK 800 menu bar. The Transfer Licenses Between a Device and a Key screen displays.

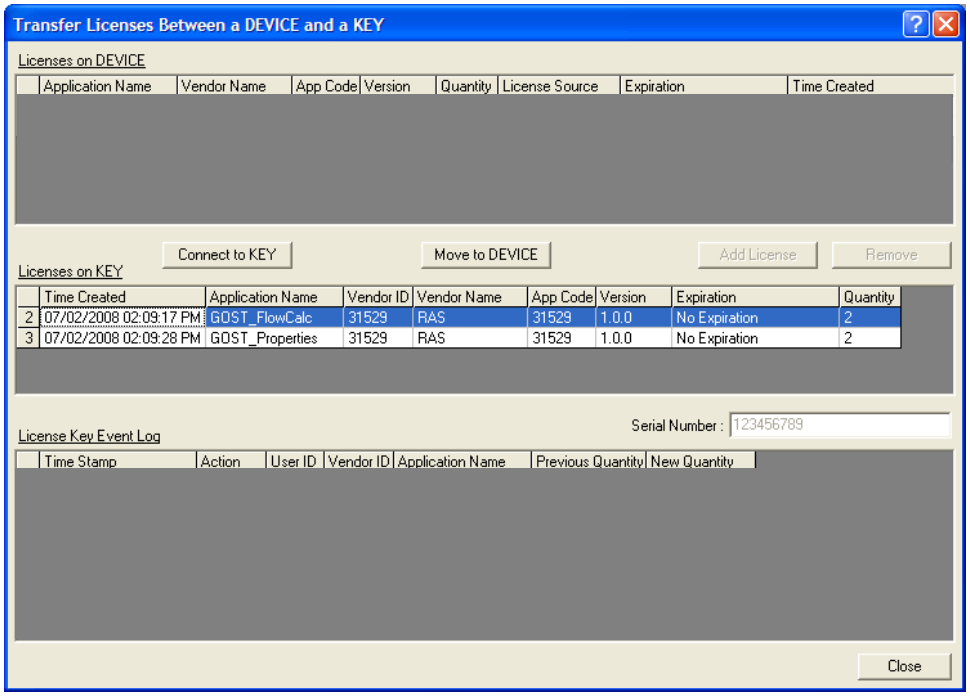

Figure 1. Transfer Licenses Between a Device and a Key

Note: This screen has three sections. The upper portion (Licenses on Device) shows any software licenses installed on the FB107. The middle portion (Licenses on Key) shows software licenses on the license key. The lower portion of the screen (License Key Event Log) provides a rolling log of the last eight events related to this license key.

3. Select the key-based licenses you want to transfer to the FB107 (GOST_FlowCalc, as shown in *Figure 1*).
4. Click **Move to Device**. ROCLINK moves one instance of the license from the key to the FB107 and updates the screen.

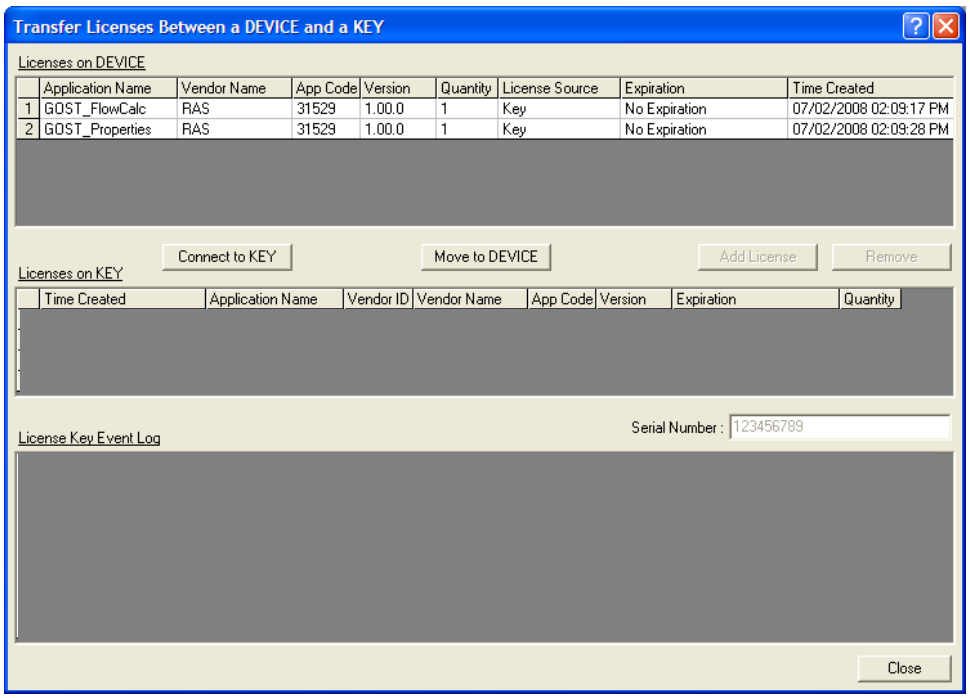

Figure 2. License Installed

Note: An FB107 can hold up to six different licenses, although you can install only one instance of each license on the FB107. When you click Move to Device, ROCLINK 800 moves only one instance of the license onto the FB107 and automatically decreases the license quantity on the USB key by one.

5. Verify the license name displays in the Licenses on Device section of the screen. Proceed to *Section 2.2* to download the user program.

2.2 Downloading the GOST Flow Calculation Program

This section provides instructions for installing the GOST Measurement programs into the Flash memory on the FB107.

Notes:

- The GOST Measurement Application consists of two program files, GOST_FlowCalc_5.bin and GOST_Properties_3.bin. The programs may be run separately and are independent of each other. This manual assumes you are installing both programs.
- Connect a PC to the FloBoss's LOI port **before** starting the download.

To download the user program:

1. Start and logon to ROCLINK 800.
2. Select **ROC** > **Direct Connect** to connect to the FloBoss unit.
3. Select **Utilities** > **User Program Administrator** from the ROCLINK menu bar. The User Program Administrator screen displays (see *Figure 3*):

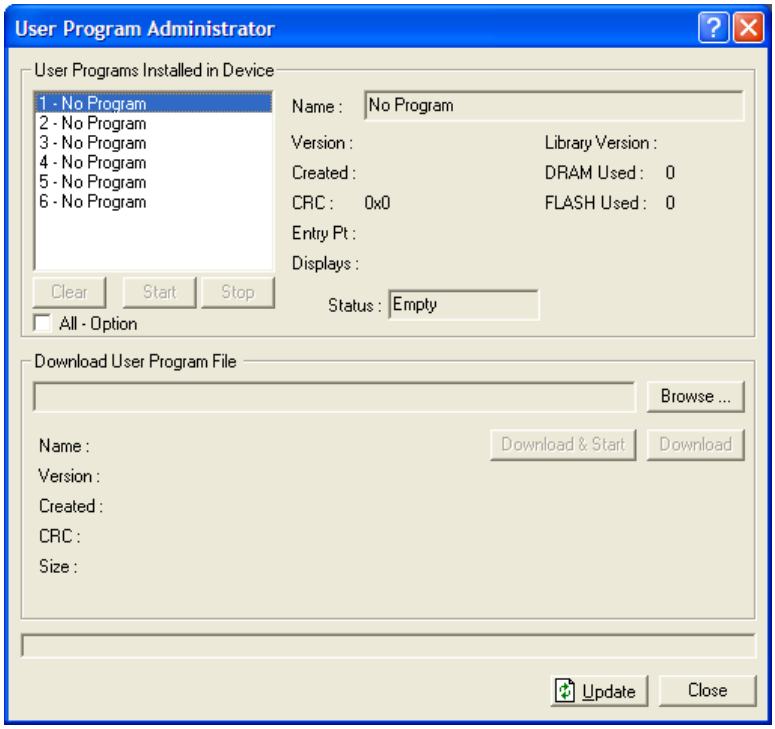

Figure 3. User Program Administrator

4. Click **Browse** in the Download User Program File frame. The Select User Program File screen displays (see *Figure 4*).
5. Select the path and user program file to download from the CD-ROM. (Program files are typically located in the Program Files folder on the CD-ROM). As *Figure 4* shows, the screen lists all valid user program files with the .BIN extension:

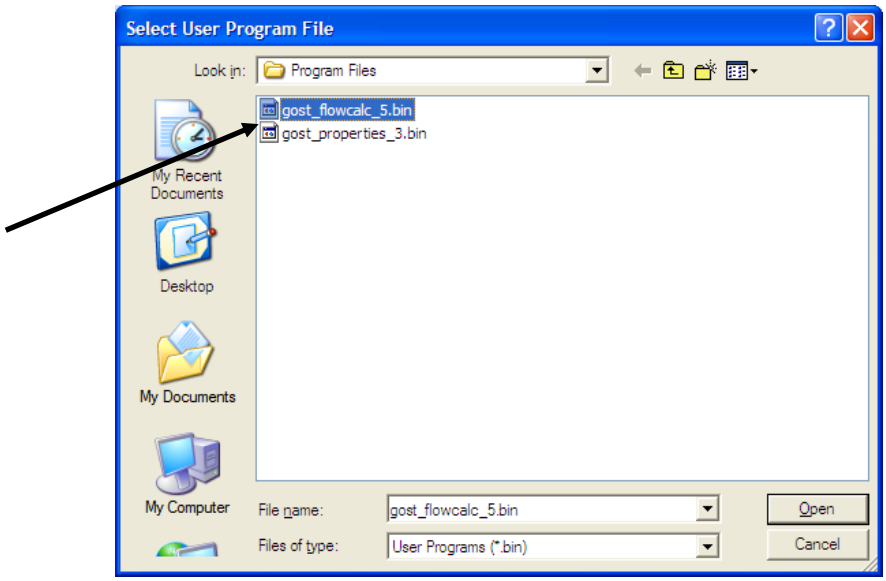

Figure 4. Select User Program File

6. Click **Open** to select the program file. The User Program Administrator screen displays. As shown in *Figure 5*, note that the Download User Program File frame identifies the selected program and that the **Download & Start** button is active:

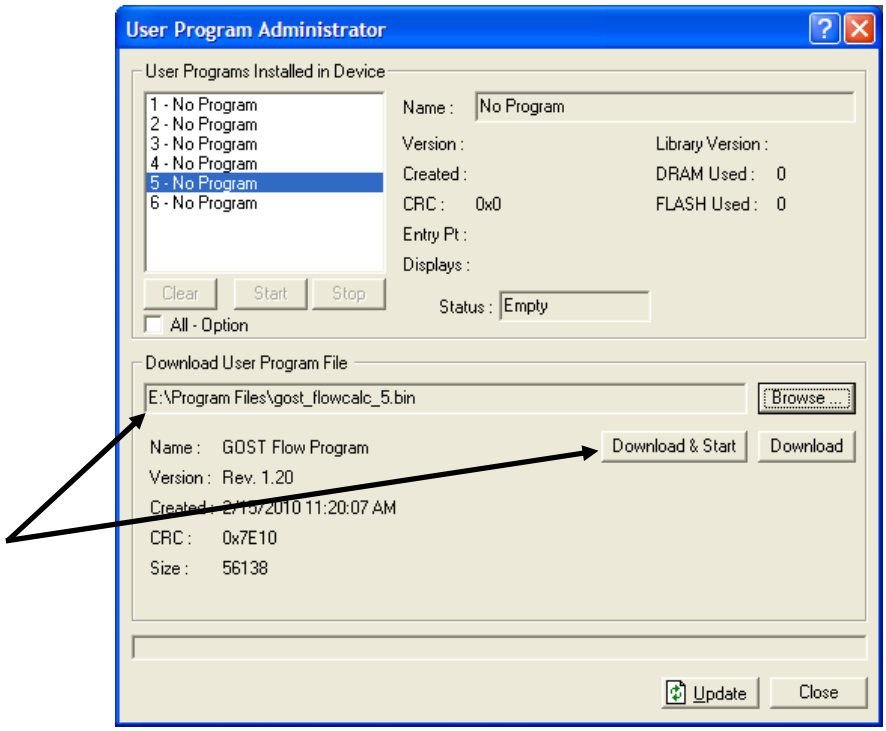

Figure 5. User Program Administrator

7. Click **Download & Start** to begin loading the selected programs. The following message displays:

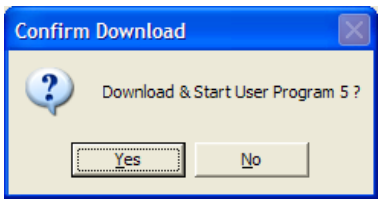

Figure 6. Confirm Download

Note: For the FB107, the factory has assigned program positions based on memory allocations. For this reason, the GOST Flow Calculation program automatically installs as program 5.

8. Click **Yes** to begin the download. During the download, the program performs a warm start, creates an event in the event log, and—when the download completes—displays the following message:

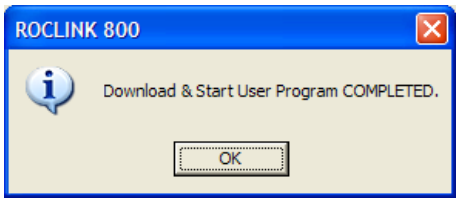

Figure 7. ROCLINK 800 Download Confirmation

9. Click **OK**. The User Program Administrator screen displays (see *Figure 8*). Note that:

- The User Programs Installed in Device frame identifies the loaded program.
- The Status field indicates that the program is running.

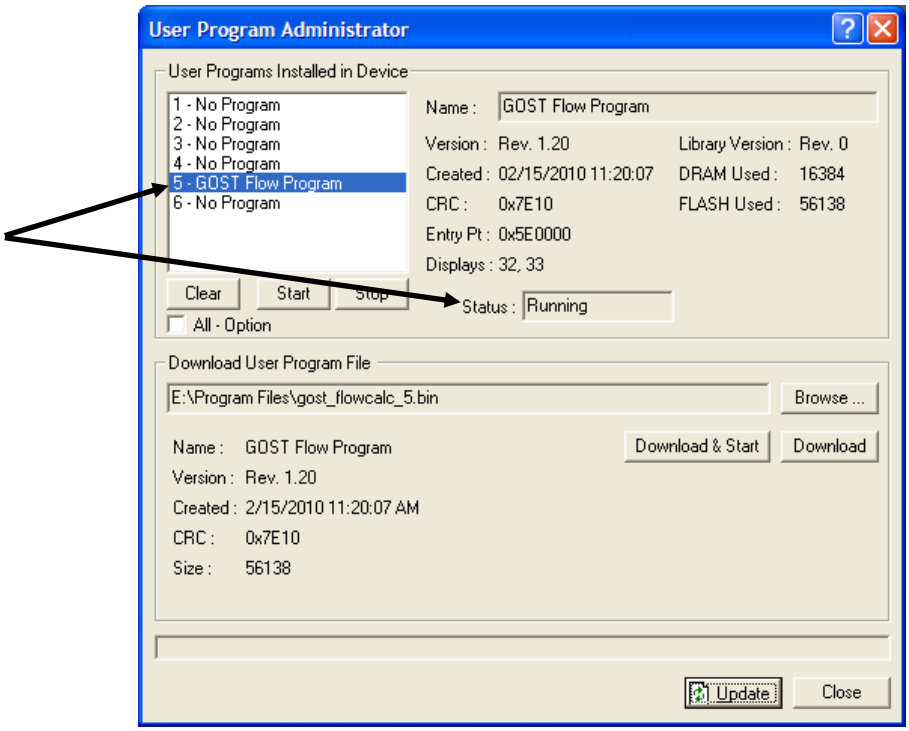

Figure 8. User Program Administrator

10. Proceed to *Section 2.3* to load the GOST Properties program.

2.3 Downloading the GOST Properties Program

This section provides instructions for installing the GOST Properties program into the Flash memory on the FB107.

To download the user program:

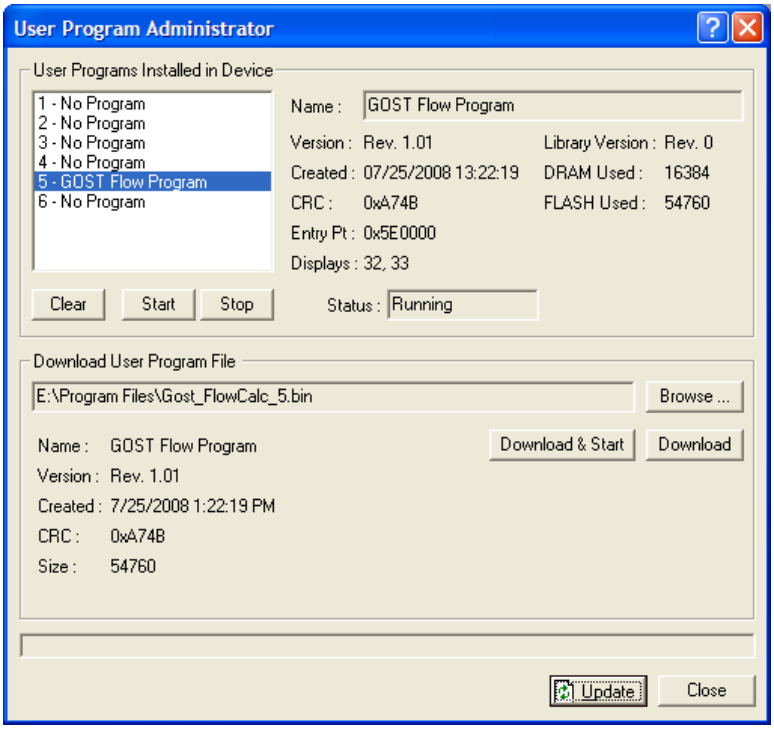

Figure 9. Select User Program File

1. Click **Browse** in the Download User Program File frame. The Select User Program File screen displays (see *Figure 10*).
2. Select the path and user program file to download from the CD-ROM. (Program files are typically located in the Program Files folder on the CD-ROM). As *Figure 10* shows, the screen lists all valid user program files with the .BIN extension:

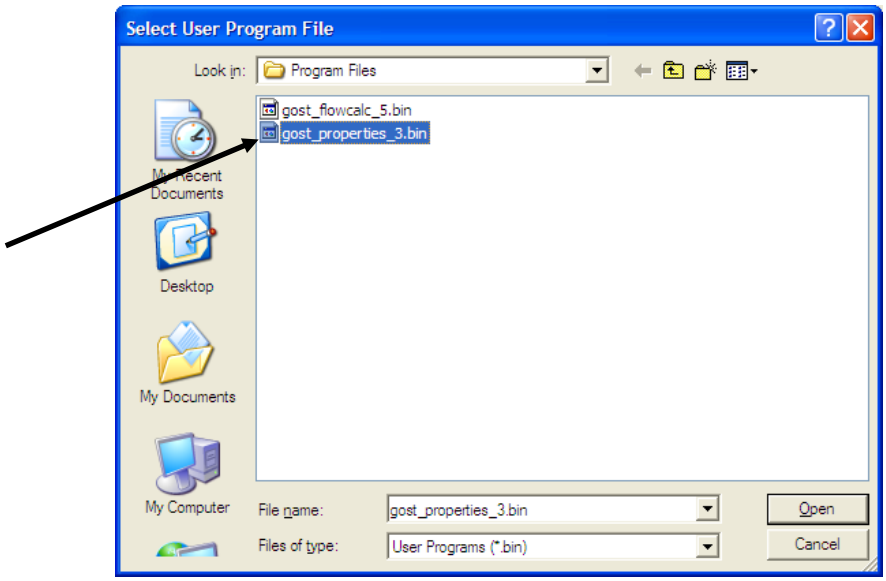

Figure 10. Select User Program File

3. Click **Open** to select the program file. The User Program Administrator screen displays. As shown in *Figure 11*, note that the Download User Program File frame identifies the selected program and that the **Download & Start** button is active:

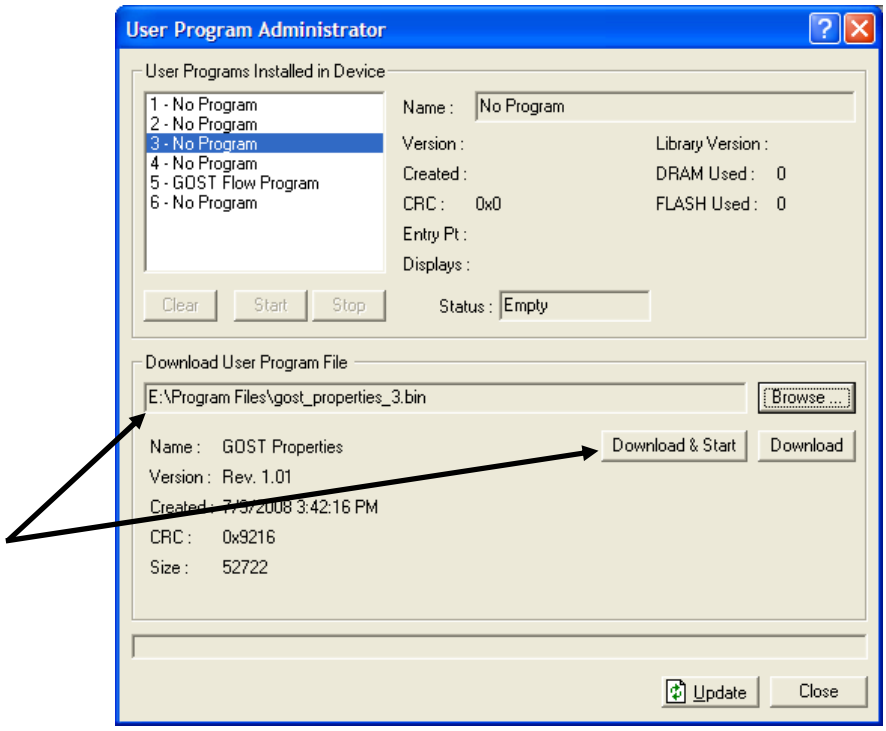

Figure 11. User Program Administrator

4. Click **Download & Start** to begin loading the selected programs. The following message displays:

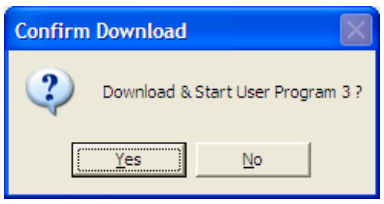

Figure 12. Confirm Download

Note: For the FB107, the factory has assigned program positions based on memory allocations. For this reason, the GOST Properties program automatically installs as program 3.

5. Click **Yes** to begin the download. During the download, the program performs a warm start, creates an event in the event log, and—when the download completes—displays the following message:

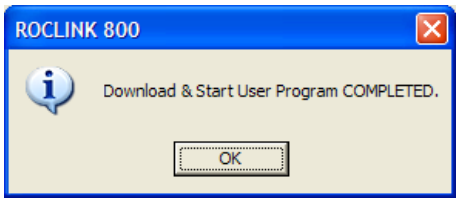

Figure 13. ROCLINK 800 Download Confirmation

6. Click **OK**. The User Program Administrator screen displays (see *Figure 14*). Note that:
   - The User Programs Installed in Device frame identifies the loaded program.
   - The Status field indicates that the program is running.

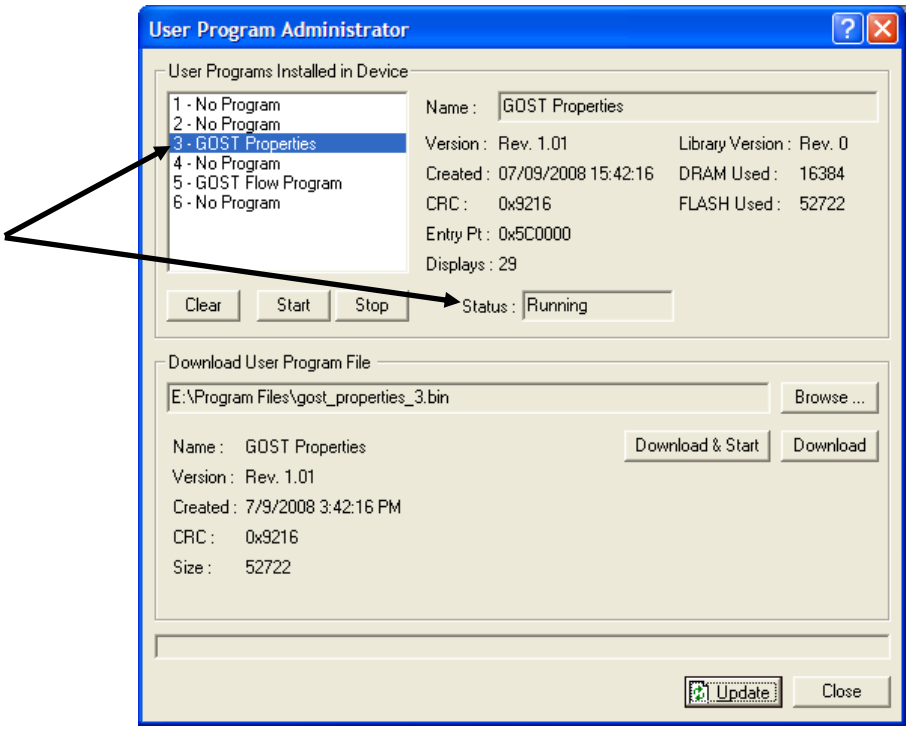

Figure 14. User Program Administrator

7. Click **Close** and proceed to *Section 3* to configure the program.

Chapter 3 – Configuration

After you have loaded the GOST Measurement Application, you configure it using the ROCLINK 800 software. To do this, you use one GOST Properties screen (GOST Properties) and two GOST Flow Calculations screens (GOST Flow Setup and GOST Flow Values):

- Use the GOST Properties screen to define program specifics including calculation method and gas composition.
- Use the GOST Flow Setup screen to define meter properties.
- Use the GOST Flow Values screen to view flow totals and alarms.

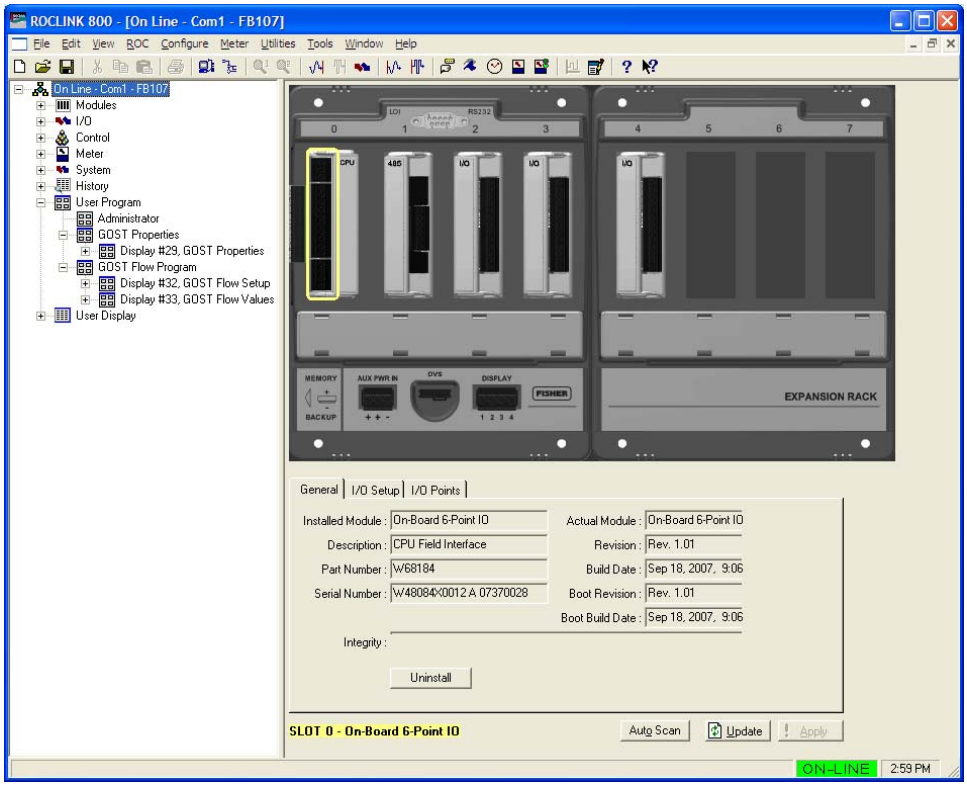

Figure 15. ROCLINK 800 screen

3.1 GOST Properties Screen

Use this screen and its tabs to define the fluid properties calculation method and gas composition.

To access this screen:

1. From the Directory Tree, select **User Program** > **GOST Properties**.
2. Double-click **Display #29, GOST Properties.**
3. Double-click **#1, MET01**. The GOST Properties screen displays, showing the Settings tab:

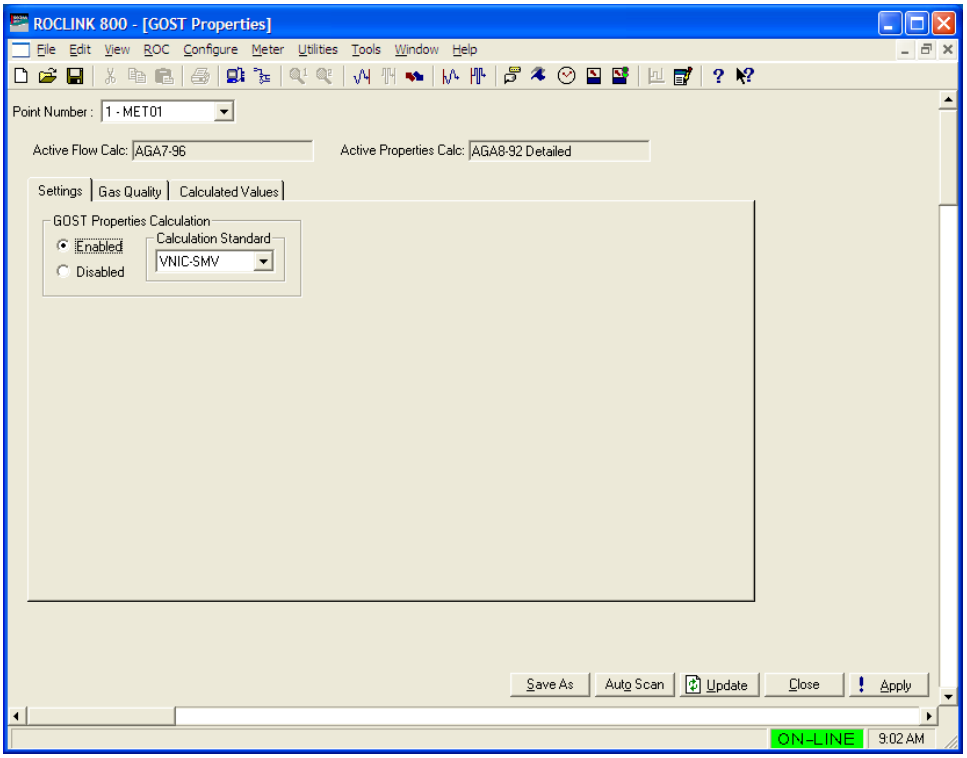

Figure 16. GOST Properties screen

4. Review the values in the following fields:

Field	Description
Point Number	Indicates the specific meter run you want to define. Click ▼ to display additional runs for this device.
Active Flow Calc	This **read-only** field indicates the specific flow calculation in use.
Active Properties Calc	This **read-only** field indicates the specific properties calculation in use.

Note: The GOST Properties screen—like other screens in this program—has a tab format. *Sections 3.1.1* through *3.1.3* discuss the requirements for each tab on the GOST Properties screen.

3.1.1 GOST Properties – Settings tab

Use this tab (which displays when you access the GOST Properties screen) to define the fluid properties calculation method used by the program and program options.

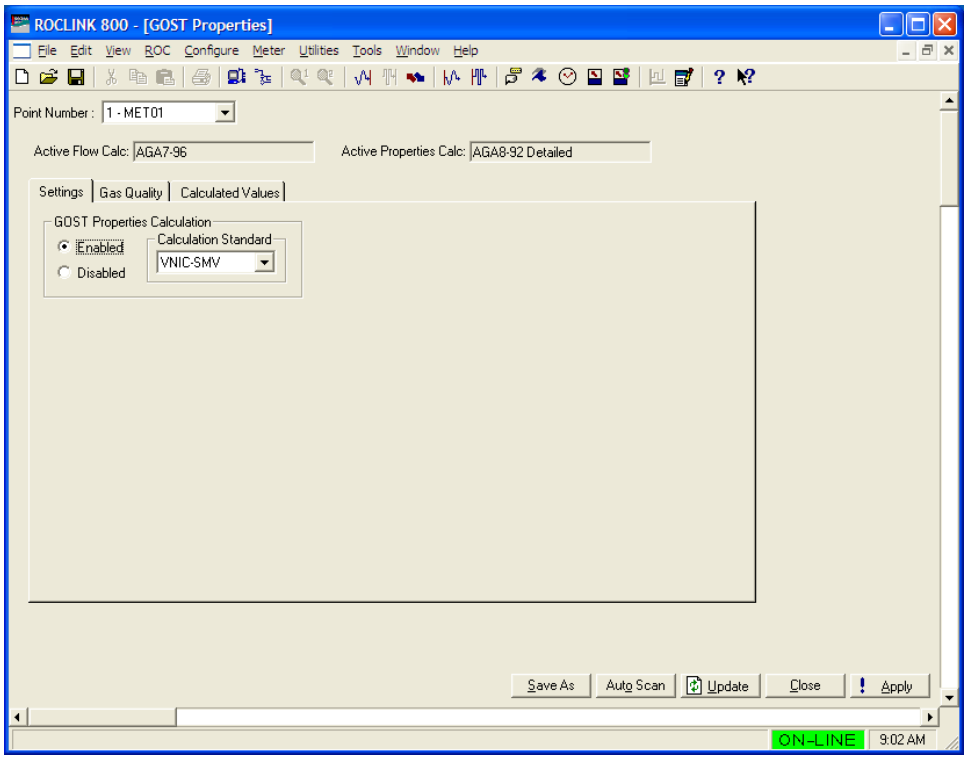

Figure 17. GOST Properties, Settings tab

1. Review the values in the following fields:

Field	Description
GOST Properties Calculation	Sets the run status for GOST properties calculations. Valid selection are Enabled and Disabled. If Enabled, the program calculates fluid properties based on the calculation specified in the Calculation Standard field for the selected meter run. If Disabled, fluid properties are calculated by the AGA8 algorithm embedded in FB107 firmware or by a separate properties user program.
Calculation Standard	Set the method of calculation for the selected meter. Valid values are VNIC-SMV, GERG-91, and NX19.

2. Click **Apply** to save any changes you have made to this screen.
3. Proceed to *Section 3.1.2* to define gas qualities.

3.1.2 GOST Properties – Gas Quality tab

Use this tab to define the fluid properties to be used in the calculation.

To access this screen:

1. Select the **Gas Quality** tab on the GOST Properties screen.

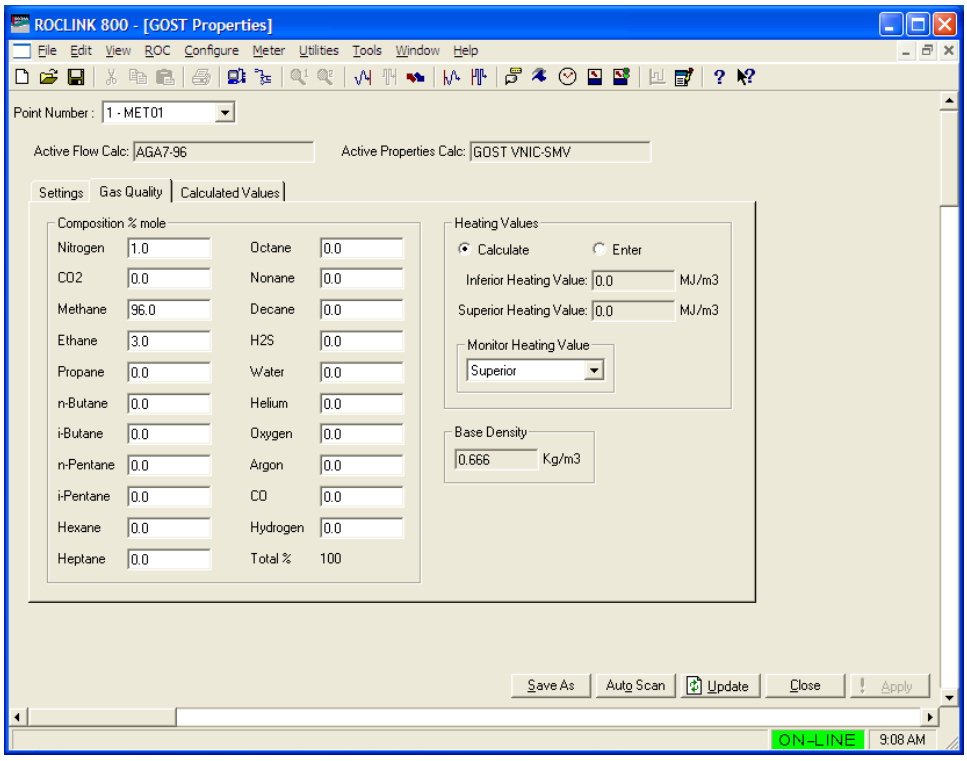

Figure 18. GOST Properties, Gas Quality tab

2. Review the values in the following fields:

Field	Description
Component % Mole	Enter the mole percent of each gas component. The Total Mole % should equal 100% after all the component mole percentages have been entered. **Notes:** ▪ For VNIC-SMV calculations, all mole % fields must be entered. ▪ For GERG-91 and NX19 calculations, only CO2, Nitrogen, and Base Density need to be entered.
Heating Values	Sets how the system determines the heating value for a specified quantity of gas. Valid values are **Calculate** (allow the system to calculate the heating value from the gas composition data) or **Enter** (use the value specified in the energy calculation).

Field	Description
Inferior Heating Value	Sets/displays, in MJ/m3, the inferior heating value based on the Monitor Heating Value selection. If the Heating Values field is set to Calculate, this **read-only** field shows the inferior heating value calculated by the program. If the Heating Values field is set to Enter, sets a user-defined inferior heating value.
Superior Heating Value	Sets/displays, in MJ/m3, the superior heating value based on the Monitor Heating Value selection. If the Heating Values field is set to Calculate, this **read-only** field shows the superior heating value calculated by the program. If the Heating Values field is set to Enter, sets a user-defined superior heating value.
Monitor Heating Value	Sets which heating value is used for energy calculations and archives. Valid selections are Inferior and Superior.
Base Density	Sets/displays, in kg/m3, the density of the selected product at base conditions. For VNIC-SMV, this **read-only** field shows the program calculated base density. For GERG and NX19, sets a user-defined base density.

3. Click **Apply** to save any changes you have made to this screen.
4. Proceed to *Section 3.1.3* to review calculated values.

3.1.3 GOST Properties – Calculated Values tab

Use this tab to view all property values calculated by the program.

To access this screen:

1. Select the **Calculated Values** tab on the GOST Properties screen.

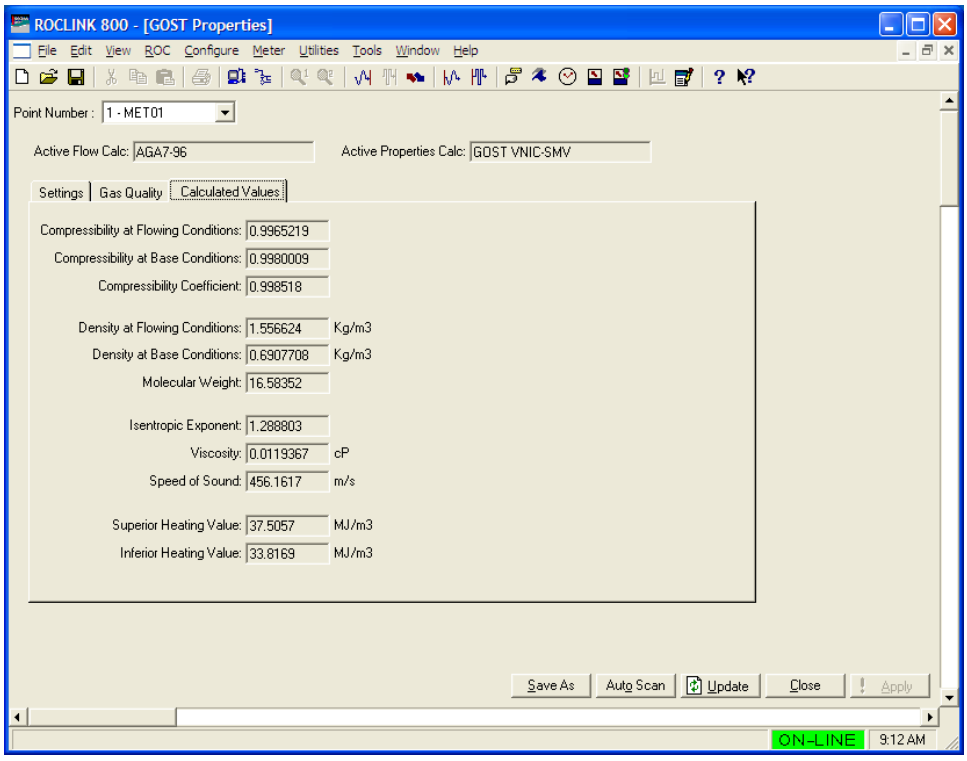

Figure 19. GOST Properties, Calculated Values tab

2. Review the values listed on the screen.

Note: All fields on the Calculated Values tab are **read-only**.

3. Proceed to *Section 3.2* to define the GOST Flow Setup screen.

3.2 GOST Flow Setup Screen

Use this screen and its tabs to define the calculation method used by the program.

To access this screen:

1. From the Directory Tree, select **User Program** > **GOST Flow Program**.
2. Double-click **Display #32, GOST Flow Setup**.
3. Double-click **#1, GOST #1**. The GOST Flow Setup screen displays, showing the General tab:

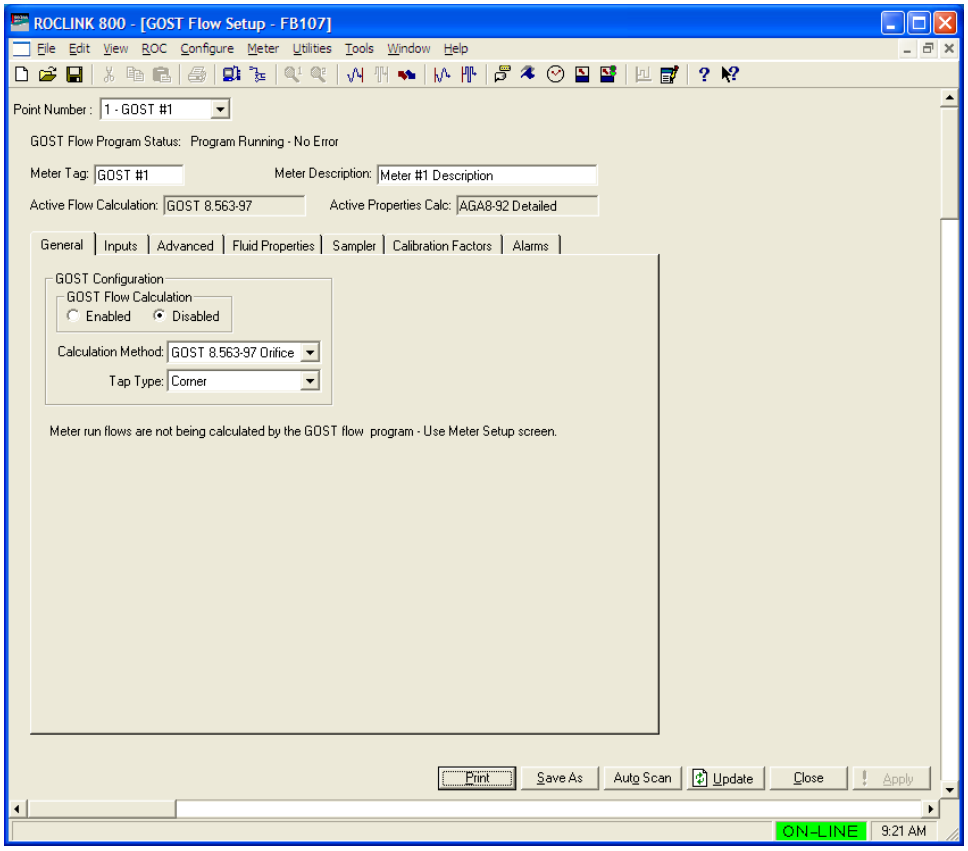
ROCLINK 800 - [GOST Flow Setup - FB107]
File Edit View ROC Configure Meter Utilities Tools Window Help
Point Number : 1 - GOST #1
GOST Flow Program Status: Program Running - No Error
Meter Tag: GOST #1
Meter Description: Meter #1 Description
Active Flow Calculation: GOST 8.563-97
Active Properties Calc: AGA8-92 Detailed
General Inputs Advanced Fluid Properties Sampler Calibration Factors Alarms
GOST Configuration
GOST Flow Calculation
Enabled Disabled
Calculation Method: GOST 8.563-97 Orifice
Tap Type: Corner
Meter run flows are not being calculated by the GOST flow program - Use Meter Setup screen.
Print Save As Auto Scan Update Close Apply
ON-LINE
9:21 AM

Figure 20. GOST Flow Setup screen

4. Review the values in the following fields:

Field	Description
Point Number	Selects the specific meter run you want to define. Click ▼ to display all meters in the device.
GOST Flow Program Status	This **read-only** field shows the run status of the program. Valid values are Program Running-No Error, Program Not Loaded, Program Loaded-Not Enabled, Not Running-License Not Found, and Not Running-License Expired.

Field	Description
Meter Tag	Sets a name (up to 10 alphanumeric characters) for the selected meter run. **Note**: The program uses this description on subsequent program screens.
Meter Description	Sets a short description (up to 20 alphanumeric characters) for the selected meter run. **Note**: The program uses this description on subsequent program screens.
Active Flow Calculation	This **read-only** field indicates the specific flow calculation in use.
Active Properties Calc	This **read-only** field indicates the specific properties calculation in use.

Note: The GOST Flow Setup screen—like GOST Properties screen—has a tab format. *Sections 3.2.1* through *Section 3.2.7* discuss the requirements for each tab on the GOST Flow Setup screen.

3.2.1 GOST Flow Setup – General tab

Use this tab (which displays when you access the GOST Flow Setup screen) to define the calculation method used by the program.

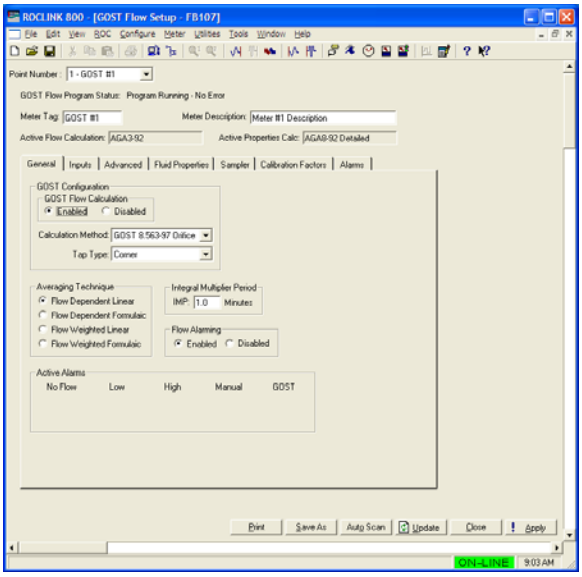

Figure 21a. GOST Flow Setup, General tab (Calculation Method is GOST 8.563-97)

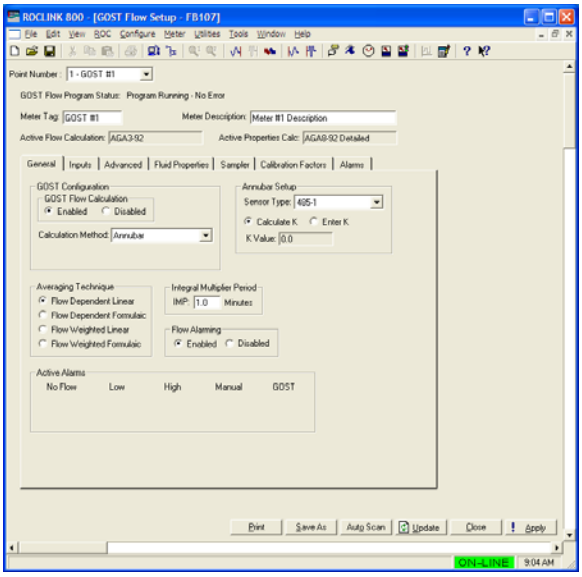

Figure 21b. GOST Flow Setup, General tab (Calculation Method is Annubar)

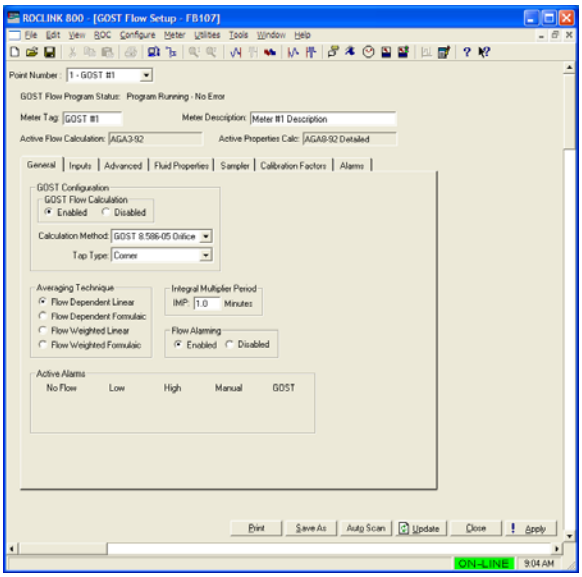

Figure 21c. GOST Flow Setup, General tab (Calculation Method is GOST 8.586-05)

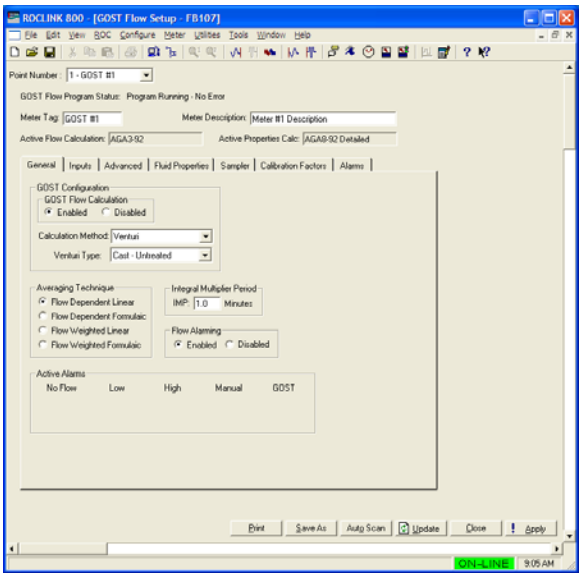

Figure 21d. GOST Flow Setup, General tab (Calculation Method is Venturi)

1. Review the values in the following fields:

Field	Description
GOST Flow Calculation	Sets the run status of the GOST program. Valid selections are Enabled (the program performs the flow calculation defined in the Calculation Method field) or Disabled (the program allows flow to be calculated by the embedded AGA, ISO 5167, or other flow calculation user program.
Calculation Method	Sets the calculation method for the selected meter run. Valid values are GOST 8.563-97 Orifice, GOST 8.586-05 Orifice, Annubar, and Venturi.
Tap Type	Sets the tapping type. Valid values are Corner, Flange, and Pipe (D and D/2). **Note:** The field displays **only** if GOST 8.563-97 Orifice or GOST 8.586-05 Orifice is selected as the Calculation Method.
Venturi Type	Sets the Venturi tube type for the selected meter run. Valid values are Cast – Untreated, Machined – Treated, and Welded – Rough. **Note:** The field displays **only** if Venturi is selected as the Calculation Method.
Sensor Type	Sets the type of Annubar sensor for the selected meter run. Valid selections are 485-1, 485-2, 485-3, Diamond-10, Diamond-15/16, Diamond-25/26, Diamond-35/36, and Diamond-45/46. **Note**: The field displays **only** if Annubar is selected as the Calculation Method.
Calculate/Enter K	Sets whether the Annubar K Factor is a user-entered value or is calculated by the program. **Note**: The field displays **only** if Annubar is selected as the Calculation Method.
K Value	Set/displays the Annubar sensor K Value. If Calculate K is selected, this **read-only** field displays the K Value as calculated by the program. It Enter K is selected, sets a user-defined K Value. **Note**: The field displays **only** if Annubar is selected as the Calculation Method.
Averaging Technique	Select an Averaging Technique for the Meter Run. The default value is Flow Dependent Linear.
Flow Dependant Linear	This is the simplest and most commonly used method. This method discards samples for periods when there is no measurable flow, and performs a straightforward (linear) average of the remaining samples to compute the minute and hour values. The value specified in the Low Flow Cutoff section of the Inputs tab determines the values. When no flow occurs, all values are sampled.

Field	Description	
Averaging Technique (continued)	**Flow Dependant Formulaic**	This method discards samples for periods when there is no flow. However, in calculating the average, this method typically takes the square root of each sample before averaging the samples together, and then squares the result. This formulaic method produces a slightly lower value than the linear method.
	Flow Weighted Linear	This method does not discard any samples; instead, it "weights" each sample by multiplying it by a flow value (square root of the differential pressure measured during the sample period). Next, a linear average is calculated by dividing the sum of the flow-weighted sample by the sum of the flow values. This result includes minute and hourly values that are more reflective of short periods of high flow.
	Flow Weighted Formulaic	This method combines the flow-weighting action with the formulaic averaging technique, both of which were described previously.
Integral Multiplier Period	Sets, in minutes, how frequently the system calculates the combined correctional factors known as the Integral Multiplier Value (IMV) (per the API measurement standard *Chapter 21, Section 1*) for the orifice flow equation. The default IMP is **1** minute; it can be no **more** than **60** minutes in length and cannot be **less** than **1** minute.	
Flow Alarming	Sets whether alarms are generated by the program and saved in the alarm log. Valid values are Enabled and Disabled.	
Active Alarms	Indicates the alarm status. If an alarm is activated, an alarm icon displays at the bottom of the screen. Possible alarms are No Flow, Low, High, Manual, and GOST. **Note:** This field displays **only** if Flow Alarming is set to Enabled.	

2. Click **Apply** to save any changes you have made to this screen.
3. Proceed to *Section 3.2.2* to define meter inputs.

3.2.2 GOST Flow Setup – Inputs tab

Use this tab to define inputs for the selected meter.

To access this screen:

1. Select the **Inputs** tab on the GOST Flow Setup screen.

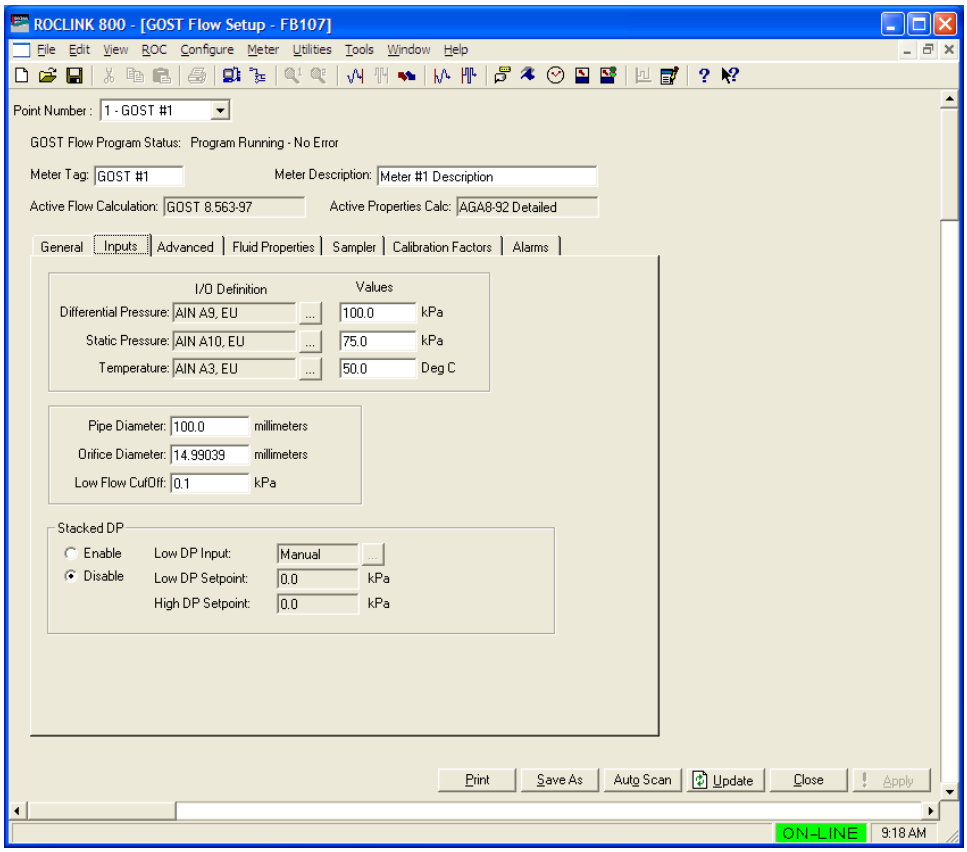
ROCLINK 800 - [GOST Flow Setup - FB107]
File Edit View ROC Configure Meter Utilities Tools Window Help
Point Number : 1 - GOST #1
GOST Flow Program Status: Program Running - No Error
Meter Tag: GOST #1
Meter Description: Meter #1 Description
Active Flow Calculation: GOST 8.563-97
Active Properties Calc: AGA8-92 Detailed
General Inputs Advanced Fluid Properties Sampler Calibration Factors Alarms
I/O Definition
Values
Differential Pressure: AIN A9, EU
100.0 kPa
Static Pressure: AIN A10, EU
75.0 kPa
Temperature: AIN A3, EU
50.0 Deg C
Pipe Diameter: 100.0 millimeters
Orifice Diameter: 14.99039 millimeters
Low Flow CufOff: 0.1 kPa
Stacked DP
Enable
Disable
Low DP Input: Manual
Low DP Setpoint: 0.0 kPa
High DP Setpoint: 0.0 kPa
Print Save As Auto Scan Update Close Apply
ON-LINE 9:18 AM

Figure 22. GOST Flow Setup, Inputs tab

2. Review the values in the following fields:

Field	Description
Differential Pressure	Sets the input that senses the differential pressure. Assigns the point type, logical, and parameter (TLP) of the I/O value for the static pressure. Click ... to display the Select TLP screen and define your TLP selection. The value field shows, in kPa, the differential pressure. If Manual appears, use the Values field to enter an engineering units value for the meter input. Otherwise, the Values field indicates the current input value.

Field	Description
Static Pressure	Sets the input that senses static pressure. Assigns the point type, logical, and parameter (TLP) of the I/O value for the static pressure. Click ... to display the Select TLP screen and define your TLP selection. The value field shows, in kPa, the static pressure. If Manual appears, use the Values field to enter a engineering units value for the static pressure input. Otherwise, the Values field indicates the current input value.
Temperature	Sets the input that senses the temperature of the flowing gas. Assigns the point type, logical, and parameter (TLP) of the I/O value for the temperature. Click ... to display the Select TLP screen and define your TLP selection. The value field shows, in °C, the temperature. If Manual appears, use the Values field to enter an engineering units value for the temperature input. Otherwise, the Values field indicates the current input value.
Pipe Diameter	Sets/Displays, in millimeters, the inside diameter for the pipe near the orifice plate or Annubar probe in this meter run.
Orifice / Probe / Tube Diameter	Sets, in millimeters, the uncorrected Annubar probe diameter, orifice diameter, or Venturi tube diameter. If Annubar is selected as the Calculation Method, this **read-only** field shows the diameter calculated by the program. If GOST 8.563-97 Orifice, GOST 8.586-05 Orifice, or Venturi is the selected Calculation Method, sets a user-defined diameter.
Low Flow CutOff	Sets, in kPa, the low flow cutoff point. When the differential pressure value of the metering device is less than this value, the system sets the calculated flow rate to zero and, if alarming is enabled, records a No Flow alarm in the Alarm Log.
Stacked DP	Enables the use of standard differential pressure transmitters for low and high pressure ranges. Valid values are Enabled (use stacked DP transmitters) or Disabled (do not allow use of stacked DP transmitters).
Low DP Input	Sets the parameter for monitoring low differential pressure. Click ... to display a Set TLP dialog box you use to assign the parameter. You must Enable the Stacked DP parameter to use this input or you can leave this input in Manual Mode when you Disable Stacked DP.
Low DP Setpoint	Sets the differential pressure point at which the system switches over to the low differential pressure input. When the High DP input is active and the High DP reading drops below this value, the Low DP input becomes the active input. The units are kPa.

Field	Description
High DP Setpoint	Sets the differential pressure point at which the system switches over to the high differential pressure input. When the Low DP input is active and the Low DP reading rises above this setpoint, the High DP input becomes the active input. The units are kPa.

3. Click **Apply** to save any changes you have made to this screen.
4. Proceed to *Section 3.2.3* to define advanced meter parameters.

3.2.3 GOST Flow Setup – Advanced tab

Use this tab to define advanced meter parameters for the selected meter.

To access this screen:

1. Select the **Advanced** tab on the GOST Flow Setup screen.

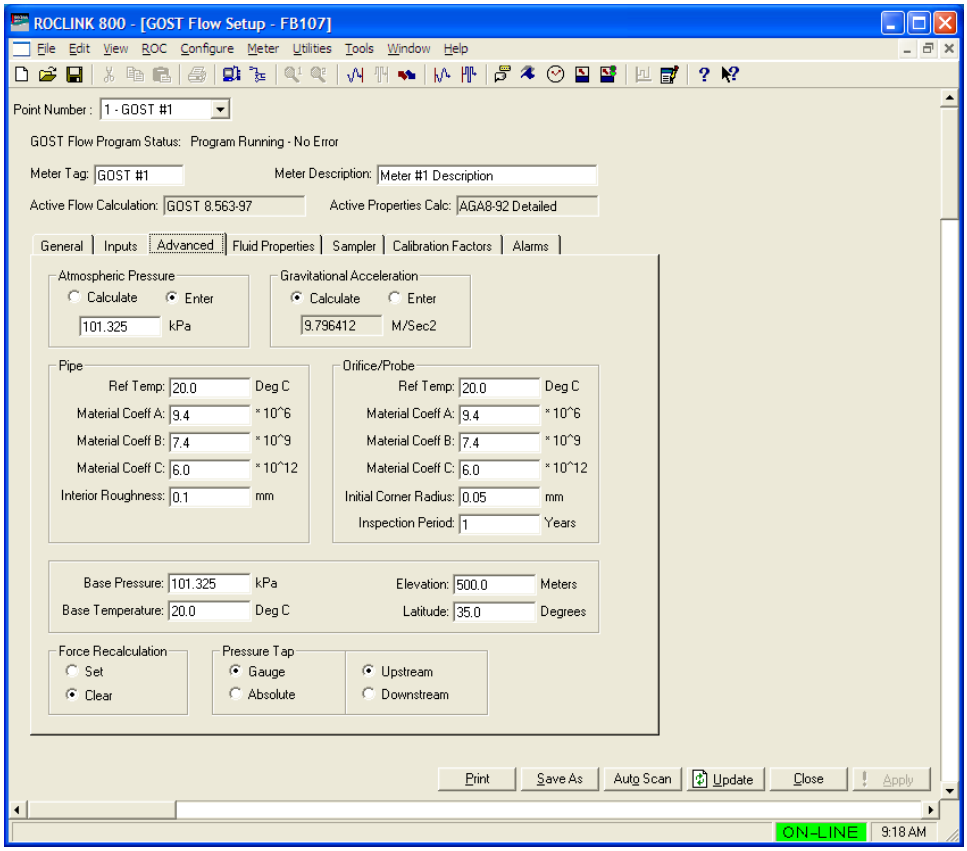

Figure 23. GOST Flow Setup, Advanced tab

2. Review the values in the following fields:

Field	Description
Atmospheric Pressure	Select either Calculate or Enter for the value, in kPa, of the atmospheric pressure (absolute) at the metering location. If Calculate is selected, the value is calculated from Elevation. If Enter is selected, set a value for the pressure. If entered, the value must be greater than zero.
Gravitational Acceleration	Select Calculate or Enter for the value, in m3/sec2, of the Gravitational Acceleration for the value at the metering location. If Calculate is selected, the value is calculated from elevation and latitude. If Enter is selected, set a value for the acceleration. If entered, the value must be greater than zero.
Ref Temp (Pipe)	Sets, in °C, the temperature at which the meter tube inside diameter was measured.

Field	Description
Material Coeff A (Pipe)	Sets the pipe material's coefficient of linear expansion for coefficient A. **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Material Coeff B (Pipe)	Sets the pipe material's coefficient of linear expansion for coefficient B. **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Material Coeff C (Pipe)	Sets the pipe material's coefficient of linear expansion for coefficient C. **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Internal Roughness (Pipe)	Sets, in millimeters, the interior wall roughness of the pipe. **Note:** The field is **only** applicable if GOST 8.563-97 Orifice or GOST 8.586-05 Orifice is selected as the Calculation Method.
Ref Temp (Orifice/Probe)	Sets, in °C, the temperature at which the Orifice, Annubar probe, or Venturi tube inside diameter was measured.
Material Coeff A (Orifice/Probe)	Sets the Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient A. **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Material Coeff B (Orifice/Probe)	Sets the Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient B **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Material Coeff C (Orifice/Probe)	Sets the Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient C. **Note:** This number can be found in *Appendix C* of the *GOST 8.563.1-97* user manual.
Initial Corner Radius (Orifice/Probe)	Sets, in millimeters, the initial orifice corner radius. **Note:** The field is **only** applicable if GOST 8.563-97 Orifice or GOST 8.586-05 Orifice is selected as the Calculation Method.
Inspection Period (Orifice/Probe)	Sets, in years, the orifice inspection period. **Note:** The field is **only** applicable if GOST 8.563-97 Orifice or GOST 8.586-05 Orifice is selected as the Calculation Method.
Base Pressure	Enter the flow measurement Base Pressure, in kPa, specified in the gas contract.

Field	Description	
Base Temperature	Enter the flow measurement Base Temperature, in °C, specified in the gas contract.	
Elevation	Sets the elevation of the metering location, expressed in meters. This value is required for the calculation of atmospheric pressure and gravitational acceleration.	
Latitude	Sets the geographical location for the metering location, expressed as degrees and minutes separated by a decimal point (such as **46.15** for 46 minutes and 15 degrees).	
Force Recalculation	Forces (after you select this value **and** click **Apply**) the system to fully recalculate the flow without waiting for the next normal recalculation. You set normal recalculation periods using the Integral Multiplier Period field on the General tab of the GOST Flow Setup screen. **Note**: The system automatically resets this parameter to **Clear** after the recalculation completes.	
Pressure Tap	Select the Pressure Tap type and location used in this Meter Run.	
	Gauge or Absolute	Select either Gauge or Absolute as the pressure tap type. This choice must match the static pressure type actually measured by the sensor. The MVS sensor, DVS sensor, or other pressure transmitter can be ordered to provide either absolute or gauge measurements. The default value is **Gauge**.
	Upstream or Downstream	Select either Upstream or Downstream to indicate the location of the static pressure tap in relation to the orifice plate or Annubar element during normal flow. The default value is **Upstream**.

3. Click **Apply** to save any changes you have made to this screen.
4. Proceed to *Section 3.2.4* to configure fluid properties.

3.2.4 GOST Flow Setup – Fluid Properties tab

Use this tab to define fluid properties for the selected meter run.

To access this screen:

1. Select the **Fluid Properties** tab on the GOST Flow Setup screen.

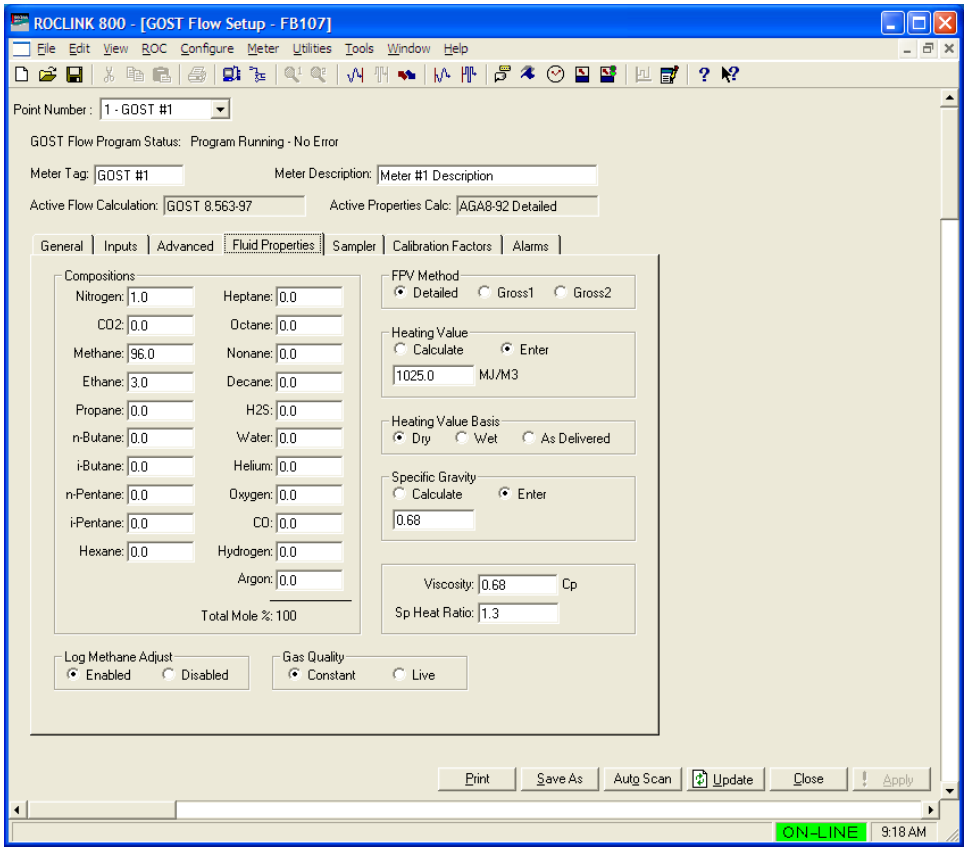

Figure 24. GOST Flow Setup, Fluid Properties tab

Note: AGA8 **must** be the active properties calculation to view this screen. If the GOST Properties program or other properties program is installed and active, then properties do not need to be entered on this screen and the following message displays: "Meter run flows are not being calculated by AGA8."

2. Review the values in the following fields:

Field	Description
Compositions	Sets the mole percent for each gas component. The default values are **96%** Methane, **3%** Ethane, and **1%** Nitrogen. Under the system default AGA8 detailed method of properties calculations, the value in the Total Mole % field must equal 100% after you define (or accept the default) mole percentages.
FPV Method	Sets the method of determining a compressibility factor for AGA calculations. Value values are:

Field	Description	
FPV Method (continued)	**Detailed**	Requires the natural gas composition in mole percent to be entered for all components.
	Gross1	Uses the specific gravity of the natural gas; the real gas gross heating value per unit volume; and the mole % of CO2 as the quantity of non-hydrocarbon components.
	Gross2	Uses the specific gravity of the natural gas; the real gas gross heating value per unit volume; and the mole % of CO2 and the mole % of N2 as the quantity of non-hydrocarbon components.
	Note: If you choose either **Gross1** or **Gross2**, you must manually enter values for Specific Gravity and Heating Value on this screen. Gross2 requires a value for Heating Value only for calculating the gas energy flow. While the Detailed method provides the highest accuracy in a broad range of measurement conditions, you can use either of the Gross methods when: ▪ Temperature is between 0 °C and 54 °C. ▪ Pressure is between 0 and 8274 kPa. ▪ Gas composition is within the Normal range, as defined in the 1992 AGA8 report.	
Heating value	Sets how the system determines the heating value for a specified quantity of gas. Valid values are **Calculate** (allow the system to calculate the heating value from the gas composition data) or **Enter** (use the value specified in the energy calculation).	
Heating Value Basis	Identifies the property basis the system used to determine the heating value for the flow or energy calculations. Valid values are:	
	Dry	No water vapor present in gas.
	Wet	Saturated wator vapor present in gas. **Note:** When you select this option, the FB107 calculates the mole percentage of water based on the algorithm from IAPWS— IF97 standards and adjusts the other mole percentages accordingly.
	As Delivered	Gas may contain some water vapor.

Field	Description
Specific Gravity	Sets the ratio of the molar mass of the gas to the molar mass of the air, a value used in the flow calculation. Valid values are **Calculate** (the system calculates the value) and **Enter** (use the specific value for the flow calculation). **Note**: If you select **Enter**, the value should represent the gas at standard conditions and cannot be less that 0.07.
Viscosity	Sets the dynamic viscosity of the flowing gas. Units are cP.
Sp Heat Ratio	Sets the specific heat ratio of the gas (defined as the specific heat of the gas at constant pressure divided by the specific heat of the gas at constant volume). Accepted practice for natural gas applications is to use a value of 1.3, which was used to develop the expansion factor tables in the AGA 3 Report – Part 3. If entered, the value must be greater than zero.
Log Methane Adjust	Logs automatic system adjustments to methane percentages. Valid values are **Enabled** (log adjustments) or **Disabled** (allow adjustments but do not log them).
Gas Quality	Sets the source for determining gas quality readings. Valid values are **Constant** (changes are entered in the event log) or **Live** (readings come from a gas chromatograph or are periodically downloaded from a host and are not entered in the event log).

3. Proceed to *Section 3.2.5* to define sampler operation.

3.2.5 GOST Flow Setup – Sampler tab

Use this tab to define operation of a sampler.

To access this screen:

1. Select the **Sampler** tab on the GOST Flow Setup screen.

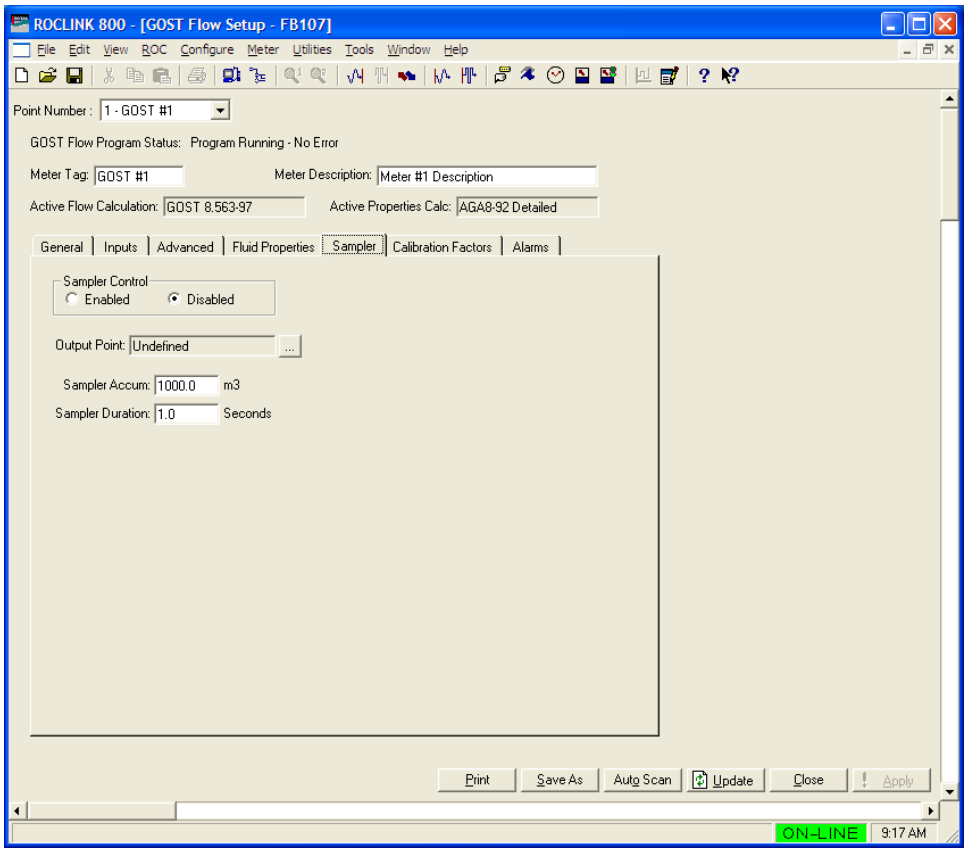
ROCLINK 800 - [GOST Flow Setup - FB107]
File Edit View ROC Configure Meter Utilities Tools Window Help
Point Number : 1 - GOST #1
GOST Flow Program Status: Program Running - No Error
Meter Tag: GOST #1
Meter Description: Meter #1 Description
Active Flow Calculation: GOST 8.563-97
Active Properties Calc: AGA8-92 Detailed
General Inputs Advanced Fluid Properties Sampler Calibration Factors Alarms
Sampler Control
Enabled
Disabled
Output Point: Undefined
Sampler Accum: 1000.0 m3
Sampler Duration: 1.0 Seconds
Print Save As Auto Scan Update Close Apply
ON-LINE
9:17 AM

Figure 25. GOST Flow Setup, Sampler tab

2. Review the values in the following fields:

Field	Description
Sampler Control	Allows the sampler to override the DO located on the CPU I/O assembly or on an I/O module. Valid values are **Enabled** (override CPU-based I/O) or **Disabled** (do not control output point). The default is **Disabled**.
Output Point	Sets the DO point to be used. Click ... to display a Select TLP dialog box you use to define the point.
Sampler Accum	Sets the volume of gas to be metered between pulses, expressed either in cubic meters. For example, if an odorizer needs to track every 100 cubic meters of gas being metered, enter **100**. The Sampler Volume Accum value is based upon the instantaneous flowrate.

Field	Description
Sampler Duration	Sets, in seconds, how long the pulse to the device needs to remain on. Whenever the sampler exceeds the defined accumulated volume (Sample Accum), the system turns on the discrete output for the amount of time set in this field.

3. Proceed to *Section 3.2.6* to define calibration factors.

3.2.6 GOST Flow Setup – Calibration Factors tab

Use this tab to define calibration factors.

To access this screen:

1. Select the **Calibration Factors** tab on the GOST Flow Setup screen.

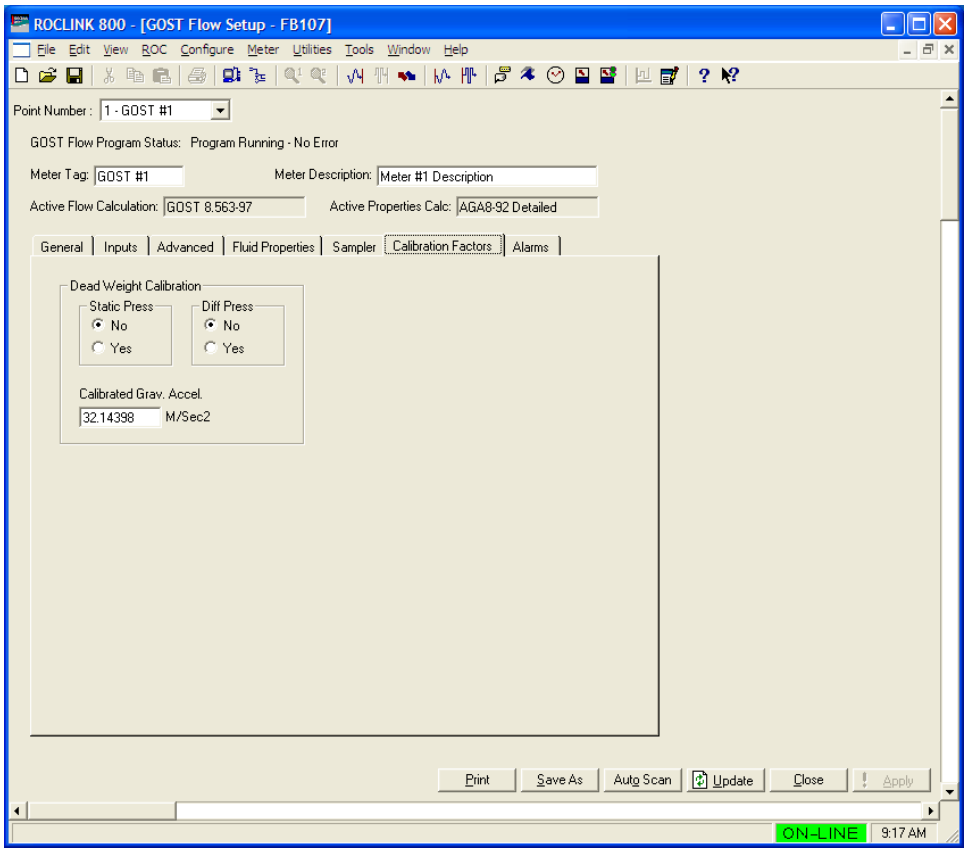
ROCLINK 800 - [GOST Flow Setup - FB107]
File Edit View ROC Configure Meter Utilities Tools Window Help
Point Number : 1 - GOST #1
GOST Flow Program Status: Program Running - No Error
Meter Tag: GOST #1
Meter Description: Meter #1 Description
Active Flow Calculation: GOST 8.563-97
Active Properties Calc: AGA8-92 Detailed
General Inputs Advanced Fluid Properties Sampler Calibration Factors Alarms
Dead Weight Calibration
Static Press
No
Yes
Diff Press
No
Yes
Calibrated Grav. Accel.
32.14398
M/Sec2
Print Save As Auto Scan Update Close Apply
ON-LINE
9:17 AM

Figure 26. GOST Flow Setup, Calibration Factors tab

2. Review the values in the following fields:

Field	Description
Static Press	Sets whether any corrections occur for local gravity's effects on dead weight calibrations to static pressure. The system multiplies the factor Fpwl by the base volume flow equation. The system uses the factor Fpwl to correct for the effect of local gravity on the weights of a dead weight calibrator, which are usually sized for use at a standard gravitational force or at some specified gravitational force. A correction factor must then be applied to correct the calibrations to the local gravitational force. **Note:** When a dead weight calibrator is used for the differential pressure and the static pressure, both must be corrected for local gravity. This involves using Fpwl twice.

Field	Description
Diff Press	Sets whether any corrections occur for local gravity's effects on dead weight calibrations to differential pressure. **Note:** The system uses the factor Fpwl to correct for the effect of local gravity on the weights of a dead weight calibrator, which are usually sized for use at a standard gravitational force or at some specified gravitational force. A correction factor must then be applied to correct the calibrations to the local gravitational force. When a dead weight calibrator is used for the differential pressure **and** the static pressure, both must be corrected for local gravity. This involves using Fpwl twice.
Calibrated Grav. Accel.	Enter a value in this field if the gravitational acceleration at the site where the deadweights were calibrated is different from the value indicated. The units assumed for the input are m/Sec^2.

3. Proceed to *Section 3.2.7* to define alarm conditions.

3.2.7 GOST Flow Setup – Alarms tab

Use this tab to define alarm conditions for the program.

To access this screen:

1. Select the **Alarms** tab on the GOST Flow Setup screen.

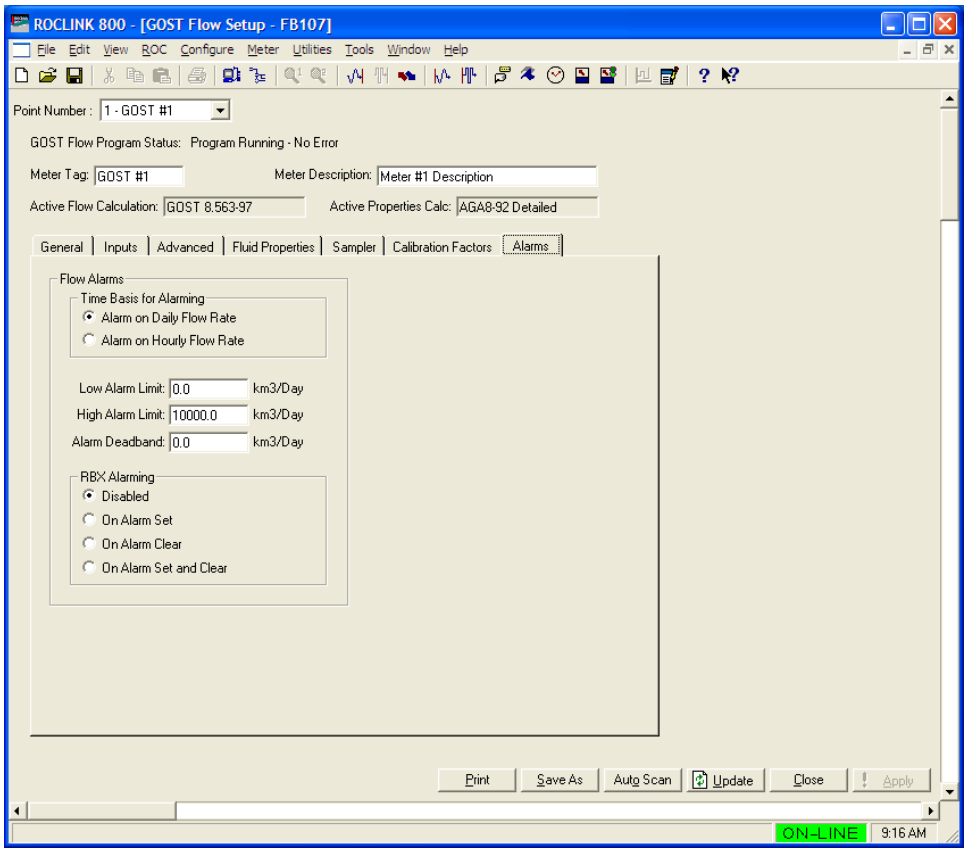
ROCLINK 800 - [GOST Flow Setup - FB107]
File Edit View ROC Configure Meter Utilities Tools Window Help
Point Number : 1 - GOST #1
GOST Flow Program Status: Program Running - No Error
Meter Tag: GOST #1
Meter Description: Meter #1 Description
Active Flow Calculation: GOST 8.563-97
Active Properties Calc: AGA8-92 Detailed
General Inputs Advanced Fluid Properties Sampler Calibration Factors Alarms
Flow Alarms
Time Basis for Alarming
Alarm on Daily Flow Rate
Alarm on Hourly Flow Rate
Low Alarm Limit: 0.0 km3/Day
High Alarm Limit: 10000.0 km3/Day
Alarm Deadband: 0.0 km3/Day
RBX Alarming
Disabled
On Alarm Set
On Alarm Clear
On Alarm Set and Clear
Print Save As Auto Scan Update Close Apply
ON-LINE 9:16 AM

Figure 27. GOST Flow Setp, Alarm tab

2. Review the values in the following fields:

Field	Description
Time Basis for Alarming	Sets the time base for which the system generates alarms. Valid values are **Alarm on Daily Flow Rate** or **Alarm on Hourly Flow Rate**. The default is **Alarm on Daily Flow Rate**.
Low Alarm Limit	Sets the value to which the calculated flowrate must fall to generate a low alarm. Units are m3/hr or km3/day dependent on the Time Basis fo Alarming selection.
High Alarm Limit	Sets the value to which the calculated flowrate must rise to generate a high alarm. Units are m3/hr or km3/day dependent on the Time Basis fo Alarming selection.

Field	Description	
Alarm Deadband	Sets a value that defines an inactive zone above the Low Alarm limits and below the High Alarm limits. This deadband prevents the system from setting and clearing the alarm continuously when the input value is oscillating around the alarm limit. Units are m3/hr or km3/day dependent on the Time Basis fo Alarming selection.	
RBX Alarming	Sets the Spontaneous Report-by-Exception (RBX or SRBX) alarming options for the meter run. **Note**: SRBX Alarming requires you to properly configure your communications ports. Valid values are:	
	Disabled	RBX Alarming is turned off.
	On Alarm Set	When the point **enters** an alarm condition, the FB107 generates a Spontaneous-Report-by-Exception message to the host.
	On Alarm Clear	When the point **leaves** an alarm condition, the FB107 generates a Spontaneous-Report-by-Exception message to the host.
	On Alarm Set and Clear	In either condition, an RBX message generates to the host.

3. Click **Close** to proceed to *Section 3.3* to view GOST flow values.

3.3 GOST Flow Values Screen

Use this screen and its tabs to view calculated flow values.

To access this screen:

1. From the Directory Tree, select **User Program** > **GOST Flow Program**.
2. Double-click **Display #33, GOST Flow Values**.
3. Double-click **#1, GOST #1**. The GOST Flow Values screen displays, showing the Current Values tab:

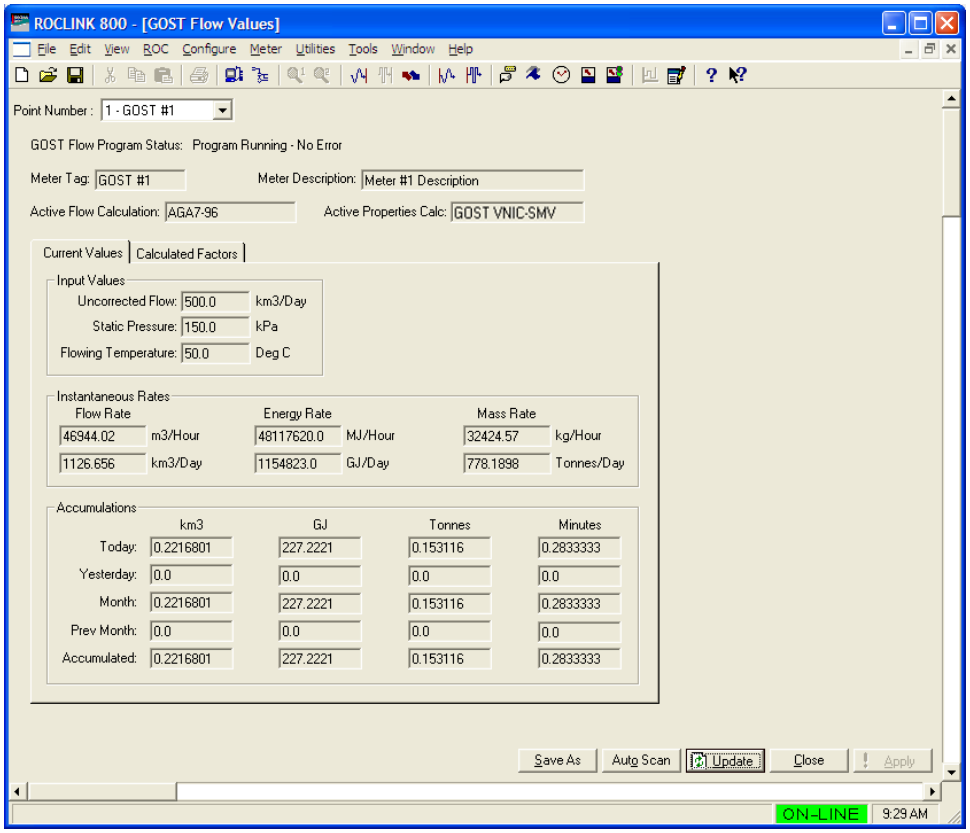

Figure 28. GOST Flow Values screen

4. Review the values in the following fields:

Field	Description
Point Number	Selects the specific meter run you want to view. Click ▼ to display additional meters for this screen.
GOST Flow Program Status	This **read-only** field shows the run status of the program. Valid values are Program Running-No Error, Program Not Loaded, Program Loaded-Not Enabled, Not Running-License Not Found, and Not Running-License Expired.
Meter Tag	This **read-only** field shows the user-defined name for the selected meter run.

Field	Description
Meter Description	This **read-only** field shows the user-defined description for the selected meter run.
Active Flow Calculation	This **read-only** field indicates the specific flow calculation in use.
Active Properties Calc	This **read-only** field indicates the specific properties calculation in use.

Note: The GOST Flow Values screen—like GOST Flow Setup screen—has a tab format. *Sections 3.3.1* through *Section 3.3.2* discuss the requirements for each tab on the GOST Flow Values screen.

3.3.1 GOST Flow Values – Current Values tab

Use this tab (which displays when you access the GOST Flow Values screen) to view meter flow information.

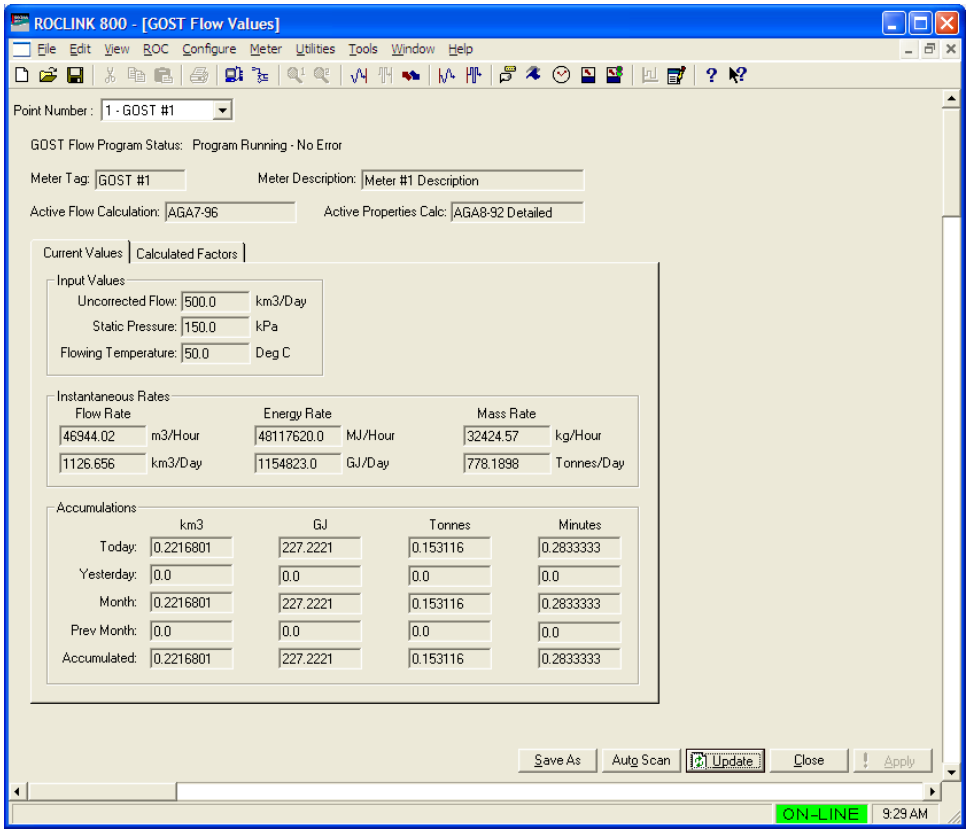

Figure 29. GOST Flow Values, Current Values tab

5. Review the values listed on the screen.

   Note: All fields on the Current Values tab are **read-only**.

6. Proceed to *Section 3.3.2* to view calculation factors.

3.3.2 GOST Flow Values – Calculated Factors tab

Use this tab to view the values of program calculated factors.

To access this screen:

1. Select the **Calculated Factors** tab on the GOST Flow Values screen.

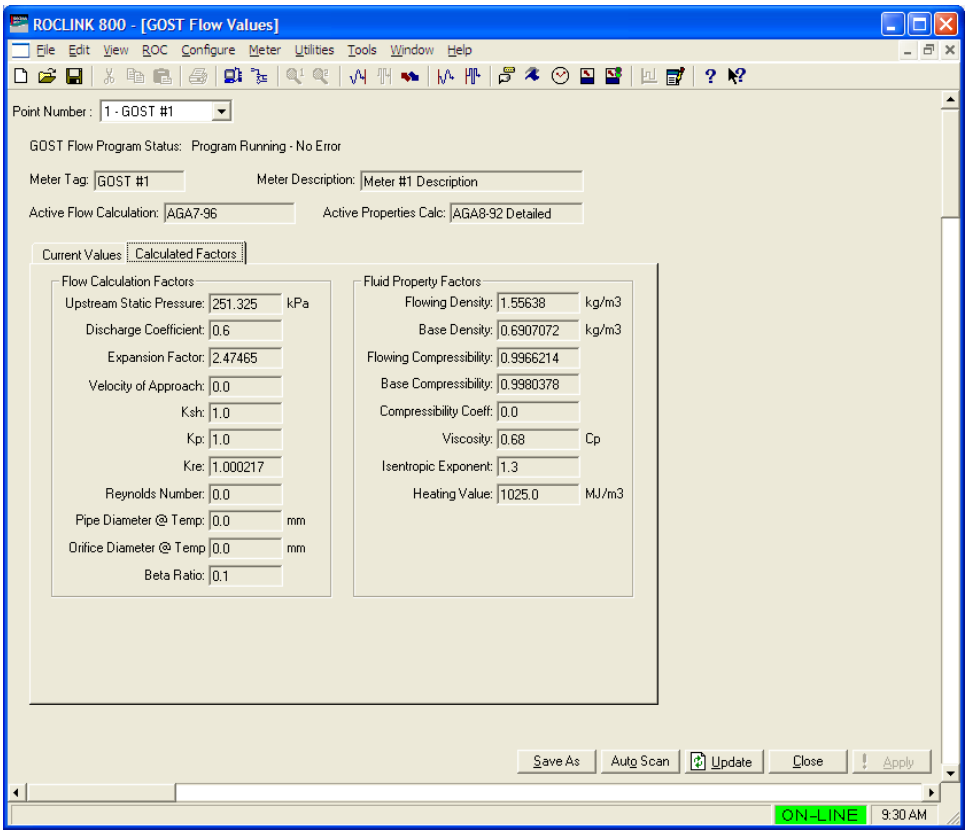

Figure 30. GOST Flow Values, Calculated Facors tab

2. Review the values listed on the screen.

   Note: All fields on the Calculated Factors tab are **read-only**.

3. Proceed to *Section 3.4* to save your configuration.

3.4 Saving the Configuration

Whenever you modify or change the configuration, save the final configuration to memory. To save the configuration:

1. Select **ROC** > **Flags** on the ROCLINK 800 menu bar. The Flags screen displays:

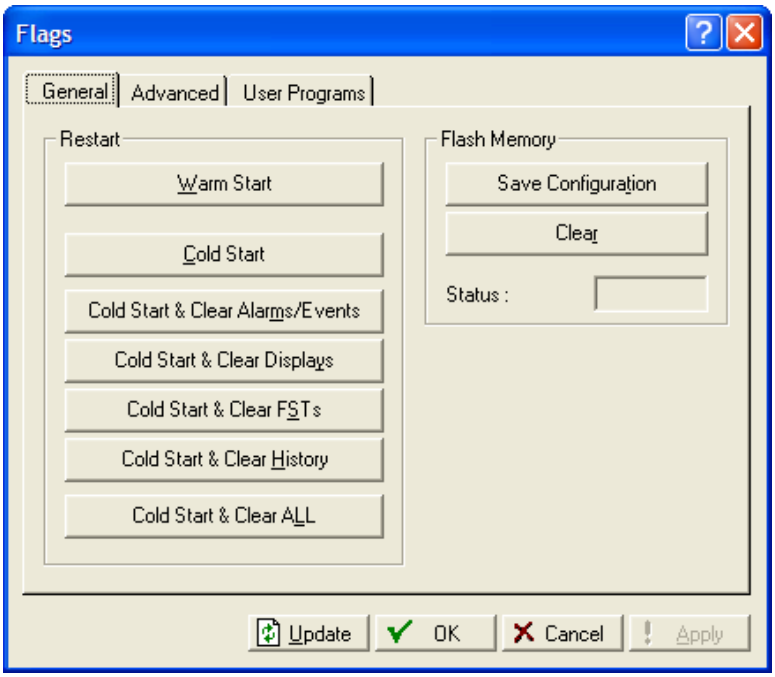

Figure 31. Flags

2. Click **Save Configuration**. A verification message displays:

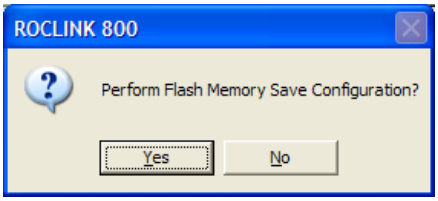

Figure 32. Save Verification

3. Click **Yes.** When the save process completes, a confirmation message displays:

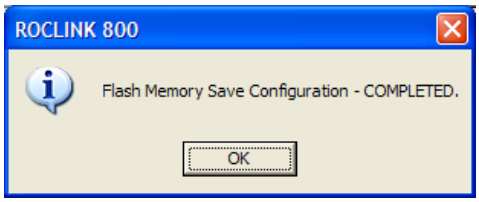

Figure 33. Confirmation

Note: Depending on the size and complexity of the user program, this process may take several minutes. When the process ends, the Status field on the Flags screen displays *Completed*.

4. Click **Update** on the Flags screen. This completes the process of saving your new configuration.

Note: For archive purposes, you should also save this configuration to your PC's hard drive or a removable media (such as a diskette or a flash drive) using the **File** > **Save Configuration** option on the ROCLINK 800 menu bar.

Chapter 4 – Reference

This section provides tables of information on the user-defined point types the GOST Measurement Application uses.

GOST Properties

- Point Type 28 (GOST Properties Configuration and Calculated Values)

GOST Flow Calculations

- Point Type 31 (GOST Flow Setup)
- Point Type 32 (GOST Flow Values)

4.1 Point Type 28: GOST Properties Configuration and Calculated Values

Point type 28 contains the parameters for configuring the GOST Properties calculation program and viewing calculated property values. The program maintains up to four logicals of this point.

Point Type 28:GOST Properties Configuration and Calculated Values

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
0	Point Tag ID	R/W	String	10	0x20 → 0x7E for each ASCII character	""	Point Type Description.
1	Calculation Standard	R/W	UINT8	1	0 , 1 , 2	0	Specifies the properties calculation to be used by the program. 0 = VNIC-SMV Properties Calculation 1 = GERG-91 Properties Calculation 2 = NX19 Properties Calculation
2	Base Density	R/W	Float	4	Any IEEE float value	0.666	Shows calculated base density in kg/m3 when VNIC calculation is selected. Allows user to enter base density value in kg/m3 when GERG or NX19 calculation is selected.
3	Calculate/Enter Heating Value	R/W	UINT8	1	0 , 1	1	Specifies if program should calculate heating value. 0 = User enters heating value 1 = Program calculates heating value
4	Monitor Heating Value Option	R/W	UINT8	1	0 , 1	1	Specifies which heating value should be used for energy calculations and archival. 0 = Use inferior heating value 1 = Use superior heating value
5	GOST Calc Enable	R/W	UINT8	1	0 , 1	0	Specifies if the GOST program should calculate fluid properties. 0 = Do not calculate fluid properties for meter run 1 = Calculate properties based selected GOST standard
6	Superior Heating Value	R/W	Float	4	Any IEEE float value	0.0	Shows calculated superior heating value in MJ/m3 when user has selected calculate heating value option. Allows user to enter the superior heating value in MJ/m3 when user has selected enter heating value option.

Point Type 28:GOST Properties Configuration and Calculated Values

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
7	Inferior Heating Value	R/W	Float	4	Any IEEE float value	0.0	Shows calculated inferior heating value in MJ/m3 when user has selected calculate heating value option. Allows user to enter the inferior heating value in MJ/m3 when user has selected enter heating value option.
8	Flowing Compressibility	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated gas compressibility value at flowing conditions (Zf).
9	Base Compressibility	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated gas compressibility value at base conditions (Zb).
10	Compressibility Coefficient	R/O	Float	4	Any IEEE float value	0.0	Shows the value of compressibility coefficient (Zf / Zb).
11	Flowing Density	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated gas density at flowing conditions in kg/m3.
12	Viscosity	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated gas viscosity in centipoise (cP).
13	Isentropic Exponent	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated isentropic exponent.
14	Speed of Sound	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated speed of sound in m/sec.
15	Molecular Weight	R/O	Float	4	Any IEEE float value	0.0	Shows the calculated molecular weight of the gas.
16	User Program CRC	R/O	String	10	0x20 → 0x7E for each ASCII character		CRC of GOST properties user program binary image loaded in unit (shown in hexadecimal format).

4.2 Point Type 31: GOST Flow Setup

Point type 31 contains the parameters for configuring the GOST Flow Calculation program. The program maintains up to four logicals of this point.

Point Type 31:GOST Flow Setup

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
0	Point Tag ID	R/W	String	10	0x20 → 0x7E for each ASCII character	""	Point Type Description.
1	Calculation Method	R/W	UINT8	1	0 , 1 , 2	0	Specifies the flow calculation to be used by the program. 0 = GOST 8.563-97 Orifice Flow Calculation 1 = Annubar Flow Calculation 2 = GOST 8.586-05 Orifice Flow Calculation 3 = Venturi 8.586.04-05 Venturi Tube Calculation
2	Tap Type	R/W	UINT8	1	0 , 1 , 2	0	Specifies type of pressure tap in use. 0 = Corner 1 = Flange 2 = Pipe
3	Orifice Inspection Period	R/W	UINT8	1	0 → 10	1	Inspection period in years.
4	Orifice Corner Initial Radius	R/W	Float	4	Any IEEE float value	0.05	Orifice corner radius in millimeters.
5	Pipe Internal Roughness	R/W	Float	4	Any IEEE float value	0.1	Interior pipe wall roughness in millimeters.
6	Pipe Material A Coefficient	R/W	Float	4	Any IEEE float value	9.4	Pipe material's coefficient of linear expansion for coefficient A.
7	Pipe Material B Coefficient	R/W	Float	4	Any IEEE float value	7.4	Pipe material's coefficient of linear expansion for coefficient B.
8	Pipe Material C Coefficient	R/W	Float	4	Any IEEE float value	6.0	Pipe material's coefficient of linear expansion for coefficient C.
9	Orifice Material A Coefficient	R/W	Float	4	Any IEEE float value	9.4	Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient A.
10	Orifice Material B Coefficient	R/W	Float	4	Any IEEE float value	7.4	Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient B.

Point Type 31:GOST Flow Setup

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
11	Orifice Material C Coefficient	R/W	Float	4	Any IEEE float value	6.0	Orifice, Annubar probe, or Venturi tube material's coefficient of linear expansion for coefficient C.
12	Annubar Sensor Model	R/W	UINT8	1	0 → 7	0	Specifies model of Annubar sensor in use. 0 = Annubar 485 Model 1 1 = Annubar 485 Model 2 2 = Annubar 485 Model 3 3 = Annubar Diamond II Model 10 4 = Annubar Diamond II Model 15/16 5 = Annubar Diamond II Model 25/26 6 = Annubar Diamond II Model 35/36 7 = Annubar Diamond II Model 45/46
13	Calculate K Option	R/W	UINT8	1	0 , 1	0	Specifies if the Annubar Flow Coefficient (K) is calculated by the program or entered by the user. 0 = Calculated by program 1 = Entered by user
14	Annubar Flow Coefficient (K)	R/W	Float	4	Any Positive Floating Point Number	0.0	Annubar Flow Coefficient value used in flow equation. This value is calculated by the program when the calculate K option is selected. The user must enter this value when the enter K value option is selected.
15	Ksh Value	R/O	Float	4	Any IEEE float value	1.0	Ksh correction coefficient value.
16	Kp Value	R/O	Float	4	Any IEEE float value	1.0	Kp correction coefficient value.
17	Kre Value	R/O	Float	4	Any IEEE float value	1.000217	Kre correction coefficient value.
18	Coefficient Z Value	R/O	Float	4	Any IEEE float value	0.0	Coefficient Z value.
19	Pipe Diameter at Flowing Temperature	R/O	Float	4	Any Positive Floating Point Number	0.0	Pipe diameter adjusted to flowing temperature conditions (in millimeters).
20	Orifice Diameter at Flowing Temperature	R/O	Float	4	Any Positive Floating Point Number	0.0	Orifice, Annubar probe, or Venturi tube diameter adjusted to flowing temperature conditions (in millimeters).

Point Type 31:GOST Flow Setup

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
21	GOST Alarm Status	R/W	UINT8	1	0 , 1	0	Indicates if a GOST specific alarm is active. 0 = No GOST specific alarms are active 1 = At least one GOST specific alarm is active
22	GOST Calc Enable	R/W	UINT8	1	0 , 1	0	Specifies if the GOST program should calculate flow. 0 = Do not calculate flow for meter run 1 = Calculate flow based GOST standard for meter run
23	User Program CRC	R/O	String	10	0x20 → 0x7E for each ASCII character		CRC of the GOST flow calculation user program binary image loaded in unit (shown in hexadecimal format).
24	Venturi Tube Type	R/W	UINT8	1	0 → 2	0	Specifies the Venturi tube type. 0 = Cast – Untreated 1 = Machined – Treated 2 = Welded – Rough

4.3 Point Type 32: GOST Flow Values

Point type 32 is required for ROCLINK to properly display the meter tag for each meter run when accessing the GOST Flow Values display.

Point Type 32:GOST Flow Values

Parm #	Name	Access	Data Type	Length	Range	Default	Description of functionality and meaning of values
0	Point Tag ID	R/O	String	10	0x20 → 0x7E for each ASCII character	""	Point Type Description.

If you have comments or questions regarding this manual, please direct them to your local sales representative or contact:

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